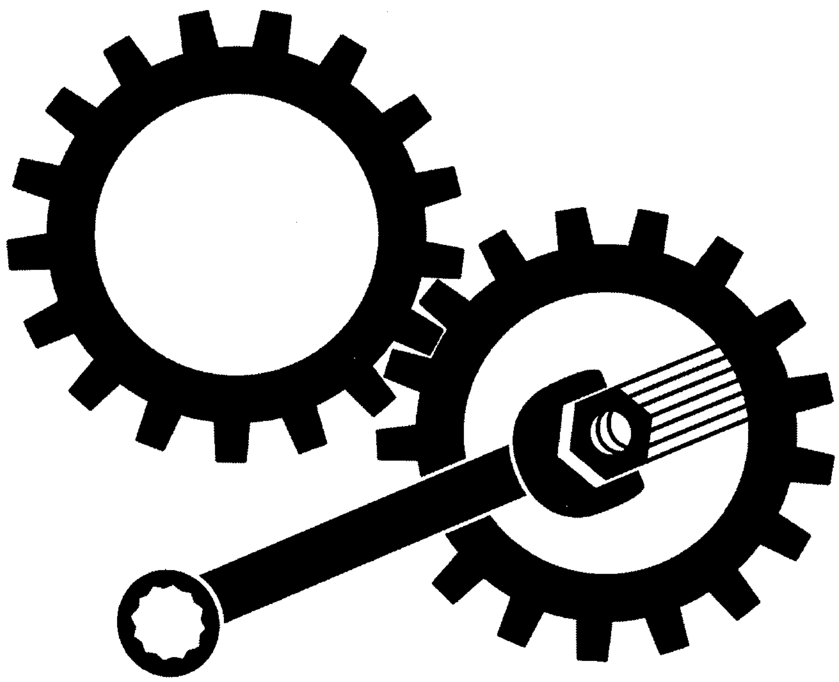
Walk Behind Lawn Mower

Service Manual

Models 911044-062, 064, 065, 067-073, 075-084, 304, 311, 463, 467-469, 475, 509, 511, 513-517



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SECTION 1 - INTRODUCTION

1.1 THE MANUAL

Before operation of unit, carefully and completely read your manuals. The contents will provide you with an understanding of safety instructions and controls during normal operation and maintenance.

All reference to left, right, front, or rear are given from the operation position, facing the direction of forward travel.

1.2 SERVICE AND REPLACEMENT PARTS

When ordering replacement parts or making service inquiries, know the Model and Serial numbers of your unit and engine.

Numbers are located on the product registration form in the unit literature package. They are also printed on a serial number label, located on the frame of your unit (Figure 1).

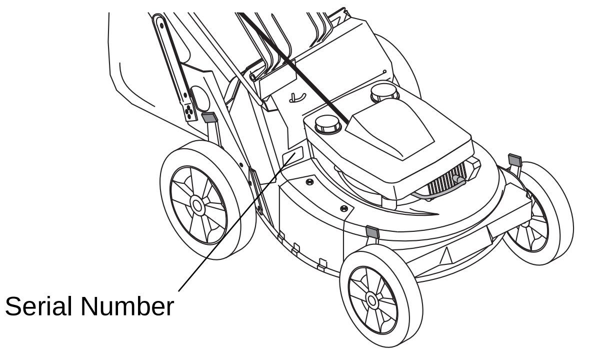


Figure 1

1.3 PRODUCT REGISTRATION

A warranty registration card must be filled out by the Ariens dealer, signed, and returned at time of sale. This card activates the warranty. Claims meeting requirements during limited warranty period will be honored.

1.4 UNAUTHORIZED REPLACEMENT PARTS

Use only Ariens replacement parts. The replacement of any part on this unit with anything other than Ariens authorized replacement parts may adversely affect the performance, durability, or safety of this unit and may void the warranty. Ariens disclaims liability for any claims or damages, whether warranty, property damage, personal injury, or death arising out of the use of unauthorized replacement parts.

1.5 DISCLAIMER

Ariens reserves the right to discontinue, make changes to, and add improvements upon its products at any time without public notice or obligation. The descriptions and specifications contained in this manual were in effect at printing. Equipment described within this manual may be optional. Some illustrations may not be applicable to your unit.

1.6 TECHNICAL SERVICE COMMUNICATIONS

Ariens Technical Service communicates information to the field using Service Letters, Service Bulletins, Product Notices, and Campaigns. Each communication signifies a type of information and priority. The dealer is responsible to carry out the directive provided in the communication. The types of communication are:

Service Letter - General technical information for the dealer. Technical information on how to service the product and product improvements.

Service Bulletin - Notification to update products to resolve certain issues or a notification of a policy change.

Product Notices - Notification of limited product located in a certain region. This is a limited distribution to only those who received the product involved.

Campaigns - Notification of a safety related issue. All product must be updated and are tracked by the factory until all units are corrected.

2.1 SAFETY ALERTS

Look for these symbols to point out important safety precautions. They mean:

Attention!

Personal Safety Is Involved!

Become Alert!

Obey The Message!

2.2 SIGNAL WORDS

The safety alert symbol is used in decals on the unit and with proper operation procedures in this manual. They alert you to the existence and relative degree of hazards.

Understand the safety message. It contains important information about personal safety on or near the unit.

DANGER: IMMINENTLY HAZARDOUS SITUATION! If not avoided, WILL RESULT in death or serious injury.

WARNING: POTENTIALLY HAZARDOUS SITUATION! If not avoided, COULD RESULT in death or serious injury.

CAUTION: POTENTIALLY HAZARDOUS SITUATION! If not avoided, MAY RESULT in minor or moderate injury. It may also be used to alert against unsafe practices.

2.3 NOTATIONS

NOTE: General reference information for proper operation and maintenance practices.

IMPORTANT: Specific procedures or information required to prevent damage to unit or attachment.

2.4 PRACTICES AND LAWS

Practice usual and customary safe working precautions, for the benefit of yourself and others. Understand and follow all safety messages. Be alert to unsafe conditions and the possibility of minor, moderate, or serious injury or death. Learn applicable rules and laws in your area.

2.5 REQUIRED OPERATOR TRAINING

Original purchaser of this unit was instructed by the seller on safe and proper operation. If unit is to be used by someone other than original purchaser; loaned, rented or sold, ALWAYS provide this manual and any needed safety training before operation.

2.6 PREPARATION

Before starting any removal of parts, proper preparation is very important for efficient work. A clean work area at the start of each job will allow you to perform service repairs easily and quickly.

To reduce the incidence of misplaced tools or parts, place removed components with all attaching hardware in the disassembly order on a clean work surface. Organization is a key part of proper reassembly.

Tools, instruments, and parts needed for the job should be gathered before work is started. Interrupting a job to locate tools or parts is a needless delay.

CAUTION: Remove enough fuel so that no spillage will occur. Remove battery to prevent spillage of electrolyte.

2.7 CLEANING AND STORAGE

WARNING: AVOID SHARP EDGES which can cut. Movement of parts can cut off fingers or a hand. Wear gloves, and use extreme caution when servicing.

IMPORTANT: Never spray unit with water or store unit outdoors to help prevent sealed bearing rust or corrosion. Water can seep into sealed bearings and reduce component life. Bearings are sealed against dirt and debris only.

A unit that is excessively dirty should be cleaned before work starts. Cleaning will occasionally uncover trouble sources. Dirt and abrasive dust reduce the efficient work life of parts and can lead to costly replacement.

When taking unit out of extended storage:

1. Check for any damage or loose parts. Repair, replace, or tighten hardware before operation.
2. If a preservative fluid was used in fuel tank, drain and discard. Fill fuel tank with fresh new fuel.

2.8 SAFETY RULES

Walk Around Inspection

Complete a walk around inspection of unit and work area to understand:

- Work area.
- Your unit.
- All safety decals.

Work Area

ALWAYS check overhead and side clearances carefully before operation. ALWAYS be aware of traffic when operating along streets or curbs.

ALWAYS keep hands and feet within the limits of the unit.

Keep children, people, and animals away. Keep children out of work area and under watchful care of a responsible adult.

Keep area of operation clear of all toys, pets, and debris. Stay alert for hidden hazards.

Clear work area of objects which might be picked up and thrown. Remove all stones, sticks, wires, and other foreign objects. Tall grass can hide obstacles.

DO NOT run engine in an enclosed area. Always provide good ventilation.

Unit

ALWAYS keep protective structures, guards, and panels in good repair, in place and securely fastened. NEVER modify or remove safety devices.

Check Safety Interlock System for proper operation daily (see Operation section). Do not operate unless system operates properly.

Keep equipment in good condition.

ALWAYS keep discharge cover in place.

NEVER operate the engine with the Rear Door open unless the Grass Bag is in place.

When mulching, the Side Discharge Opening Cover must be installed and the Rear Door fully closed whenever the engine is operating.

Operation

Understand:

- How to operate all controls
- The functions of all controls
- How to STOP in an Emergency
- Speed ranges

ALWAYS operate unit in good visibility and light.

DO NOT pull mower backwards unless absolutely necessary. Look down and back before and while moving backwards.

DO NOT start the engine or operate mower unless either the Side Discharge Opening Cover or the Side Discharge Deflector is installed.

Keep the area of operation clear of all persons, children and pets.

ALWAYS clear area before operation to avoid thrown objects.

Stop mower if anyone enters the area.

Keep safety devices or guards in place and functioning properly. NEVER modify or remove safety devices.

ALWAYS keep hands away from all rotating parts during operation.

Do not put hands or feet near or under rotating parts. Keep clear of the discharge opening and mower pan at all times. NEVER open the Rear Door without the Grass Bag in place when the engine is operating.

ALWAYS keep feet and hands away from all rotating parts during operation. Rotating parts can cut off body parts.

DO NOT mow at too fast a rate. DO NOT change engine governor setting or over-speed the engine.

ALWAYS operate unit when there is good visibility and light.

Use extra care when approaching blind corners, shrubs, trees, or other objects which may obscure vision.

ALWAYS be sure of your footing.

Do not operate mower in wet grass. Always be sure of your footing. Keep a firm hold on handlebar. Walk, never run.

If equipment vibrates abnormally, stop engine at once, wait for moving parts to stop and remove wire from spark plug. Repair any damage before restarting unit.

Avoid uneven work areas and any rough terrain.

Be familiar with area of operation. Stay alert for holes, rocks, roots, and hidden hazards in area of operation. Operator could lose footing or balance.

DO NOT operate on steep slopes.

NEVER leave unit unattended on a slope. Chock wheels if parking on a slope.

Mow across the face of slopes, never up and down. Be especially cautious when changing direction on slopes.

Remove the key when parking.

Take all possible precautions when leaving unit unattended.

ALWAYS shut off engine, remove key and remove spark plug wire to prevent accidental starting or unauthorized use.

Fuel is highly flammable and its vapors can explode. Use ONLY approved fuel containers.
NO Smoking!
NO Sparks!
NO Flames!
Allow engine to cool before servicing.
NEVER fill fuel tank when engine is running, hot, or unit is indoors.

Abnormal Vibrations are a warning of trouble. Striking a foreign object can damage unit. Stop unit and engine. Wait for all moving parts to stop. Remove wire from spark plug. Inspect unit and make any necessary repairs before restart.

Hazardous Slopes

DO NOT operate on steep slopes. Avoid operating on slopes. When you must operate on a slope, travel up and down the slope. Never operate cross a slope. Never operate on a slope greater than 10 degrees.

Child Safety

NEVER allow children to operate or play on or near unit. Be alert and shut off unit if children enter area.

Personal Safety

Read and obey all warning, caution, and instructions on the unit and in provided manuals.

- Only trained adults may operate unit.
- Training includes actual operation.
- Clearly understand instructions.
- Be alert! Conditions can change.

NEVER operate unit after or during the use of medication, drugs or alcohol. Safe operation requires your complete and unimpaired attention at all times.

NEVER allow anyone to operate the unit when their alertness or coordination is impaired.

Avoid Sharp Edges. Sharp edges can cut. Moving parts can cut or amputate fingers or a hand. Wear gloves to service unit when handling sharp edges.

ALWAYS keep hands away from any pinch points.

ALWAYS keep hands and feet away from all moving parts during operation. Moving parts can cut off body parts.

DO NOT touch unit parts which might be hot from operation. Allow parts to cool before attempting to maintain, adjust, or service.

Keep children out of work area and under the watchful care of an adult.

NEVER allow children to operate mower.

Turn the mower off if children enter the area.

NEVER direct discharge toward bystanders. The operator is responsible for the safety of bystanders.

Wear adequate safety gear, protective gloves and footwear.

Wear sturdy footwear. DO NOT operate mower barefoot or when wearing open sandals or canvas shoes.

Always wear safety goggles or safety glasses with side shields when operating mower.

NEVER wear loose clothing, jewelry or long hair that may get caught in rotating parts. Protect eyes, face and head from objects that may be thrown from unit.

ALWAYS stand clear of discharge when operating unit.

Do not operate mower on gravel or on loose material such as sand. Stop mower when crossing gravel drives, walks, or roads, Objects may be picked up and thrown, causing damage or injury.

Fumes from the engine exhaust can cause death or serious injury. DO NOT run engine in an enclosed area.

Service and Adjustments

NEVER attempt to make any adjustments to unit while engine is running. Stop engine, remove key, disconnect spark plug wire and wait for all moving parts to stop before servicing (except where specifically recommended).

DO NOT make cutting height wheel adjustments while the engine is running.

On self-propelled models, the wheel drive control will cause the forward movement of the mower to stop. If this feature fails to operate, disconnect ignition wire and repair before using. Wheel drive must be disengaged when starting engine.

Fuel is highly flammable and its vapors can explode. ONLY use approved fuel containers.

- NO Smoking!
- NO Sparks!
- NO Flames!
- Allow engine to cool before filling fuel tank.

Check fuel supply before starting engine.

DO NOT fill gasoline tank indoors, when engine is running, or while engine is still hot.

Allow engine to cool several minutes before removing fuel cap.

Replace gasoline tank cap securely and clean up any spilled fuel before starting engine.

Stop engine, wait for moving parts to stop, remove ignition wire and secure away from spark plug before attempting to: unclog, repair, adjust, inspect or clean unit.

To reduce fire hazard and overheating, keep equipment free of grass, leaves, debris or excessive lubricants.

Battery

Avoid Electric Shock. DO NOT remove wire from spark plug while engine is running. Do not put battery in fire or mutilate.

Explosive Gases! Poisonous battery fluid contains sulfuric acid. Contact with skin, eyes or clothing can cause severe chemical burns.

No flames, No Sparks, No smoking, near battery.

ALWAYS wear safety glasses and protective gear near battery.

ALWAYS KEEP BATTERIES OUT OF REACH of children.

Maintenance

Follow engine manufacturer's safety instructions when servicing engine.

Keep all nuts, bolts, and screws tight and be sure equipment is in safe working condition. Check all hardware at regular intervals, especially blade attachment bolts.

Use only replacement parts designed for your unit. See your Ariens Dealer.

Worn out mufflers are more than just a noise nuisance and should be replaced immediately. Continued use could result in fire or explosion.

ALWAYS block wheels and know all jack stands are strong and secure and will hold weight of unit during maintenance.

Check grass bag for wear, damage, and/or deterioration. Replace only with Ariens original equipment replacement part for safety.

Storage

Allow engine to cool before storing in any enclosure.

Refer to Storage Section of the Owner's Manual for important instructions if unit is to be stored for extended periods.

ALWAYS clean unit before extended storage. See engine manual for proper storage.

DO NOT store unit before extended storage. See engine manual for proper storage.

DO NOT store unit inside a building with fuel in the fuel tank where ignition sources are present.

Safety Interlock System

Engine/Blade Control feature on mower will cause engine and blade to stop whenever operator releases control on handlebar. If feature fails to operate, disconnect spark plug wire and adjust or have it repaired before using unit.

Accessories

Use only accessories which have been approved by Ariens and are properly installed.

Spark Arrestor

This product is equipped with an internal combustion engine. DO NOT use on or near any unimproved, forest or brush covered land unless the exhaust system is equipped with a spark arrestor meeting applicable local, state or federal laws. A spark arrestor, if used, must be maintained in effective working order by the operator. See your Ariens Dealer or engine manufacturer's service center.

SECTION 3 - SPECIFICATIONS

Model Number	911044	911045	911046	911047
Description Name	**LM214SP**	**LM219SP**	**LM217SP**	**LM21SB**
Engine Manufacture	Tecumseh	Briggs	Tecumseh	Tecumseh
Cycles	Four	Four	Four	Four
HP (3600RPM)	5.5	5	5.5	5.5
Fuel Tank Capacity - qt (L)	1.5 (1.4)	1.6 (1.5)	1.5 (1.4)	1.5 (1.4)
Fuel	Unleaded	Unleaded	Unleaded	Unleaded
Primer Bulb	Standard	Standard	Standard	Standard
Throttle/Choke Control	N/A	N/A	N/A	N/A
Starting	Recoil	Recoil	Recoil	Recoil
Cylinder Bore	Aluminum	Aluminum	Aluminum	Aluminum
Pressurized Oil System	Standard	N/A	Standard	N/A
Governed RPM	2850+/-150	2900	2850+/-150	2900
Crank Case Capacity - oz (L)	27 (0.8)	20 (0.6)	27 (0.8)	27 (0.8)
Air Cleaner	Paper Element	Paper Element	Paper Element	Paper Element
Engine Oil Type	SAE 30	SAE 30	SAE 30	SAE 30
Spark Plug Gap	0.03	0.03	0.03	0.03
Differential	Standard	Standard	Standard	Standard
Variable Speeds-MPH (KPH)	0-3.5 (0-5.6)	0-3.5 (0-5.6)	0-3.5 (0-5.6)	0-3.5 (0-5.6)
Mower Deck Gauge	14 Gauge Stamped Steel	14 Gauge Stamped Steel	14 Gauge Stamped Steel	14 Gauge Stamped Steel
Baked Powder Paint	Standard	Standard	Standard	Standard
Cutting Width - in (cm)	21 (53.3)	21 (53.3)	21 (53.3)	21 (53.3)
Cutting Height - in (cm)	6 Positions	6 Positions	6 Positions	6 Positions
	1.2-3.5 (3.2-8.9)	1.2-3.5 (3.2-8.9)	1.2-3.5 (3.2-8.9)	1.2-3.5 (3.2-8.9)
Folding Handlebar	Standard One Piece	Standard One Piece	Standard One Piece	Standard One Piece
Adjustable Handlebar	4 Position	4 Position	4 Position	4 Position
Front Wheel Diameter - in (cm)	7.5 (19.1)	7.5 (19.1)	7.5 (19.1)	7.5 (19.1)
Rear Wheel Diameter - in (cm)	10.5 (26.7)	10.5 (26.7)	10.5 (26.7)	10.5 (26.7)
Side Discharge	Standard	Standard	Standard	Standard
Bagger	Standard	Standard	Standard	Standard
Mulching Capability	With Kit	With Kit	With Kit	With Kit
Attachments (* denotes it comes with unit)				
Dethatcher	71102400	71102400	71102400	71102400
Mulchmaster Package	71102700	71102700	71102700	71102700
Leaf Shredder	71102800	71102800	71102800	71102800
Side Discharge Chute	71102900	71102900	71102900	71102900
Rear Bagger	71103000	71103000	71103000	71103000
Swivel Wheel Kit	71103300	71103300	71103300	71103300
Rear Discharge Chute	71103200	71103200	71103200	71103200
Rear Roller Kit	71103400	71103400	71103400	71103400
Mulching Kit	71103500	71103500	71103500	71103500

Model Number	911048	911049	911050	911051
Description Name	**LM21SC**	**LM21**	**LM21S**	**LM21**
Engine Manufacture	Briggs	Tecumseh	Tecumseh	Tecumseh
Cycles	Four	Four	Four	Four
HP (3600RPM)	5	5	5	5.5
Fuel Tank Capacity - qt (L)	1.6 (1.5)	1 (0.9)	1 (0.9)	1.5 (1.4)
Fuel	Unleaded	Unleaded	Unleaded	Unleaded
Primer Bulb	Standard	Standard	Standard	Standard
Throttle/Choke Control				
Starting	Recoil	Recoil	Recoil	Recoil
Cylinder Bore	Cast Iron Sleeve	Aluminum	Aluminum	Aluminum
Pressurized Oil System	N/A	N/A	N/A	N/A
Governed RPM	2850	2850	2850	2850
Crank Case Capacity - oz (L)	20 (0.6)	21 (0.6)	21 (0.6)	27 (0.8)
Air Cleaner	Dual Element	Paper Element	Paper Element	Paper Element
Engine Oil Type	SAE 30	SAE 30	SAE 30	SAE 30
Spark Plug Gap	0.03	0.03	0.03	0.03
Differential	Standard	N/A	Standard	N/A
Variable Speeds-MPH (KPH)	0-3.5 (0-5.6)	N/A	0-3.5 (0-5.6)	N/A
Mower Deck Gauge	14 Gauge Stamped Steel	14 Gauge Stamped Steel	14 Gauge Stamped Steel	14 Gauge Stamped Steel
Baked Powder Paint	Standard	Standard	Standard	Standard
Cutting Width - in (cm)	21 (53.3)	21 (53.3)	21 (53.3)	21 (53.3)
Cutting Height - in (cm)	6 Positions	6 Positions	6 Positions	6 Positions
	1.2-3.5 (3.2-8.9)	1.2-3.5 (3.2-8.9)	1.2-3.5 (3.2-8.9)	1.2-3.5 (3.2-8.9)
Folding Handlebar	Standard One Piece	Standard One Piece	Standard One Piece	Standard One Piece
Adjustable Handlebar	4 Position	4 Position	4 Position	4 Position
Front Wheel Diameter - in (cm)	7.5 (19.1)	7.5 (19.1)	7.5 (19.1)	7.5 (19.1)
Rear Wheel Diameter - in (cm)	10.5 (26.7)	10.5 (26.7)	10.5 (26.7)	10.5 (26.7)
Side Discharge	Standard	Standard	Standard	Standard
Bagger	Standard	Standard	Standard	Standard
Mulching Capability	With Kit	With Kit	With Kit	With Kit
Attachments (* denotes it comes with unit)				
Dethatcher	71102400	71102400	71102400	N/A
Mulchmaster Package	71102700	71102700	71102700	71102700
Leaf Shredder	71102800	71102800	71102800	71102800
Side Discharge Chute	71102900	71102900	71102900	71102900
Rear Bagger		71103000	71103000	71103000
Swivel Wheel Kit	71103300	71103300	71103300	71103300
Rear Discharge Chute	71103200	71103200	71103200	71103200
Rear Roller Kit	71103400	71103400	71103400	71103400
Mulching Kit	71103500	71103500	71103500	71103500

Model Number	911052	911053	911054	911055
Description Name	**LM216S**	**LM21C**	**LM21**	**AP211 SP**
Engine Manufacture	Tecumseh	Briggs	Briggs	Tecumseh
Cycles	Four	Four	Four	Four
HP (3600RPM)	5.5	5.5	5.5	5.5
Fuel Tank Capacity - qt (L)	1.5 (1.4)	1.6 (1.5)	1 (0.9)	1.5 (1.4)
Fuel	Unleaded	Unleaded	Unleaded	Unleaded
Primer Bulb	Standard	Standard	N/A	Standard
Throttle/Choke Control				
Starting	Recoil	Recoil	Recoil	Recoil
Cylinder Bore	Aluminum	Cast Iron Sleeve	Aluminum	Aluminum
Pressurized Oil System	N/A	N/A	N/A	N/A
Governed RPM	2850	2900	3200	2850
Crank Case Capacity - oz (L)	27 (0.8)	20 (0.6)	20 (0.6)	21 (0.6)
Air Cleaner	Paper Element	Dual Element	Paper Element	Paper Element
Engine Oil Type	SAE 30	SAE 30	SAE 30	SAE 30
Spark Plug Gap	0.03	0.03	0.03	0.03
Differential	Standard	N/A	N/A	Standard
Variable Speeds-MPH (KPH)	0-3.5 (0-5.6)	N/A	N/A	0-3.5 (0-5.6)
Mower Deck Gauge	14 Gauge Stamped Steel	14 Gauge Stamped Steel	14 Gauge Stamped Steel	14 Gauge Stamped Steel
Baked Powder Paint	Standard	Standard	Standard	Standard
Cutting Width - in (cm)	21 (53.3)	21 (53.3)	21 (53.3)	21 (53.3)
Cutting Height - in (cm)	6 Positions	6 Positions	6 Positions	6 Positions
	1.2-3.5 (3.2-8.9)	1.2-3.5 (3.2-8.9)	1.2-3.5 (3.2-8.9)	1.2-3.5 (3.2-8.9)
Folding Handlebar	Standard One Piece	Standard One Piece	Standard One Piece	Standard One Piece
Adjustable Handlebar	4 Position	4 Position	4 Position	4 Position
Front Wheel Diameter - in (cm)	7.5 (19.1)	7.5 (19.1)	7.5 (19.1)	7.5 (19.1)
Rear Wheel Diameter - in (cm)	10.5 (26.7)	10.5 (26.7)	10.5 (26.7)	10.5 (26.7)
Side Discharge	Standard	Standard	Standard	Standard
Bagger	Standard	Standard	Standard	Standard
Mulching Capability	With Kit	With Kit	With Kit	With Kit
Attachments (* denotes it comes with unit)				
Dethatcher	N/A	N/A	N/A	N/A
Mulchmaster Package	71102700	71102700	71102700	71102700
Leaf Shredder	71102800	71102800	71102800	71102800
Side Discharge Chute	71102900	71102900	N/A	N/A
Rear Bagger	71103000	71103000	N/A	N/A
Swivel Wheel Kit	71103300	71103300	N/A	N/A
Rear Discharge Chute	71103200	71103200	71103200	71103200
Rear Roller Kit	71103400	71103400	N/A	N/A
Mulching Kit	71103500	71103500	N/A	N/A

Model Number	911056	911057	911058	911059
Description Name	**AP212 SP**	**LM2178 SP**	**AP 210**	**LM220 SP**
Engine Manufacture	Tecumseh	Briggs	Tecumseh	Tecumseh
Cycles	Four	Four	Four	Four
HP (3600RPM)	4.5	5	4	5.5
Fuel Tank Capacity - qt (L)	1.5 (1.4)	1.6 (1.5)	1.5 (1.4)	1.5 (1.4)
Fuel	Unleaded	Unleaded	Unleaded	Unleaded
Primer Bulb	Standard	Standard	Standard	Standard
Throttle/Choke Control				
Starting	Recoil	Recoil	Recoil	Recoil
Cylinder Bore	Aluminum	Cast Iron Sleeve	Aluminum	Cast Iron Sleeve
Pressurized Oil System	N/A	N/A	N/A	N/A
Governed RPM	2850	2900	3200	2850
Crank Case Capacity - oz (L)	21 (0.6)	20 (0.6)	21 (0.6)	27 (0.8)
Air Cleaner	Paper Element	Dual Element	Paper Element	Dual Element
Engine Oil Type	SAE 30	SAE 30	SAE 30	SAE 30
Spark Plug Gap	0.03	0.03	0.03	0.03
Differential	Standard	Standard	N/A	Standard
Variable Speeds-MPH (KPH)	0-3.5 (0-5.6)	0-3.5 (0-5.6)	N/A	0-3.5 (0-5.6)
Mower Deck Gauge	14 Gauge Stamped Steel	14 Gauge Stamped Steel	14 Gauge Stamped Steel	14 Gauge Stamped Steel
Baked Powder Paint	Standard	Standard	Standard	Standard
Cutting Width - in (cm)	21 (53.3)	21 (53.3)	21 (53.3)	21 (53.3)
Cutting Height - in (cm)	6 Positions	6 Positions	6 Positions	6 Positions
	1.2-3.5 (3.2-8.9)	1.2-3.5 (3.2-8.9)	1.2-3.5 (3.2-8.9)	1.2-3.5 (3.2-8.9)
Folding Handlebar	Standard One Piece	Standard One Piece	Standard One Piece	Standard One Piece
Adjustable Handlebar	4 Position	4 Position	4 Position	4 Position
Front Wheel Diameter - in (cm)	7.5 (19.1)	7.5 (19.1)	7.5 (19.1)	7.5 (19.1)
Rear Wheel Diameter - in (cm)	10.5 (26.7)	10.5 (26.7)	10.5 (26.7)	10.5 (26.7)
Side Discharge	Standard	Standard	Standard	Standard
Bagger	Standard	Standard	Standard	Standard
Mulching Capability	With Kit	With Kit	With Kit	With Kit
Attachments (* denotes it comes with unit)				
Dethatcher	N/A	N/A	N/A	71102400
Mulchmaster Package	71102700	71102700	71102700	71102700
Leaf Shredder	71102800	N/A	71102800	71102800
Side Discharge Chute	N/A	71102900	N/A	71102900
Rear Bagger	N/A	N/A	N/A	71103000
Swivel Wheel Kit	N/A	71103300	N/A	71103300
Rear Discharge Chute	71103200	71103200	71103200	71103200
Rear Roller Kit	N/A	71103400	N/A	71103400
Mulching Kit	N/A	71103500	N/A	71103500

Model Number	911060	911061	911062	911064
Description Name	**LM221**	**LM222SP**	**MM221SP**	**MM210**
Engine Manufacture	Tecumseh	Tecumseh	Tecumseh	Tecumseh
Cycles	Four	Four	Four	Four
HP (3600RPM)	5.0	6.0	5.0	4.5
Fuel Tank Capacity - qt (L)	1.5 (1.4)	1.0 (0.9)	1.5 (1.4)	1.5 (1.4)
Fuel	Unleaded	Unleaded	Unleaded	Unleaded
Primer Bulb	Standard	Standard	Standard	Standard
Throttle/Choke Control	N/A	N/A	N/A	N/A
Starting	Recoil	Recoil	Recoil	Recoil
Cylinder Bore	Aluminum	Cast Iron Sleeve	Aluminum	Aluminum
Pressurized Oil System	Standard	Standard	Standard	Standard
Governed RPM	2850+/-150	2850+/-150	2850+/-150	2850+/-150
Crank Case Capacity - oz (L)	27 (0.8)	21 (0.62)	21 (0.62)	21 (0.62)
Air Cleaner	Paper Element	Paper Element	Paper Element	Paper Element
Engine Oil Type	SAE 30	SAE 30	SAE 30	SAE 30
Spark Plug Gap	0.03	0.03	0.03	0.03
Differential	N/A	Standard	Standard	N/A
Variable Speeds-MPH (KPH)	N/A	0-3.5 (0-5.6)	0-3.5 (0-5.6)	N/A
Mower Deck Gauge	14 Gauge Stamped Steel	14 Gauge Stamped Steel	16 Gauge Stamped Steel	16 Gauge Stamped Steel
Baked Powder Paint	Standard	Standard	Standard	Standard
Cutting Width - in (cm)	21 (53.3)	21 (53.3)	21 (53.3)	21 (53.3)
Cutting Height - in (cm)	6 Positions	6 Positions	6 Positions	6 Positions
	1.25-3.5 (3.2-8.9)	1.25-3.5 (3.2-8.9)	1.25-3.5 (3.2-8.9)	1.25-3.5 (3.2-8.9)
Folding Handlebar	Standard One Piece	Standard One Piece	Standard One Piece	Standard One Piece
Adjustable Handlebar	4 Position	4 Position	4 Position	4 Position
Front Wheel Diameter - in (cm)	7.5 (19.1)	7.5 (19.1)	7.5 (19.1)	7.5 (19.1)
Rear Wheel Diameter - in (cm)	10.5 (26.7)	10.5 (26.7)	10.5 (26.7)	10.5 (26.7)
Side Discharge	Standard	Standard	N/A	N/A
Bagger	Standard	Standard	Optional	Optional
Mulching Capability	Standard	Standard	Standard	Standard
Attachments (* denotes it comes with unit)				
Dethatcher	N/A	71102400	71102400	N/A
Mulchmaster Package	*	*	71102700	71102700
Leaf Shredder	71102800	71102800	71102800	71102800
Side Discharge Chute	*	*	N/A	N/A
Rear Bagger	*	*	71103000	71103000
Swivel Wheel Kit	71103300	71103300	71103300	71103300
Rear Discharge Chute	71103200	71103200	71103200	71103200
Rear Roller Kit	71103400	71103400	71103400	71103400
Mulching Kit	71103500	71103500	*	*

Model Number	911065	911067	911068	911069
Description Name	**LM230SP**	**MM223**	**MM224SP**	**DLM225SP**
Engine Manufacture	Kawasaki	Tecumseh	Tecumseh	Briggs & Stratton
Cycles	Four	Four	Four	Four
HP (3600RPM)	5.0	5.0	5.5	5.5
Fuel Tank Capacity - qt (L)	1.4 (1.3)	1.5 (1.4)	1.5 (1.4)	1.6 (1.5)
Fuel	Unleaded	Unleaded	Unleaded	Unleaded
Primer Bulb	N/A	Standard	Standard	Standard
Throttle/Choke Control	Standard	N/A	N/A	N/A
Starting	Recoil	Recoil	Recoil	Recoil
Cylinder Bore	Cast Iron Sleeve	Aluminum	Aluminum	Cast Iron Sleeve
Pressurized Oil System	Standard	Standard	Standard	Standard
Governed RPM	2850+/-150	2850+/-150	2850+/-150	2900+/-100
Crank Case Capacity - oz (L)	19 (0.56)	27 (0.8)	27 (0.8)	20 (0.6)
Air Cleaner	Dual Element	Paper Element	Paper Element	Dual Clean
Engine Oil Type	SAE 30	SAE 30	SAE 30	SAE 30
Spark Plug Gap	0.03	0.03	0.03	0.03
Differential	Standard	N/A	Standard	Standard
Variable Speeds-MPH (KPH)	0-4.0 (0-6.4)	N/A	0-3.5 (0-5.6)	0-4 (0-6.4)
Mower Deck Gauge	14 Gauge Stamped Steel	16 Gauge Stamped Steel	16 Gauge Stamped Steel	14 Gauge Stamped Steel
Baked Powder Paint	Standard	Standard	Standard	Standard
Cutting Width - in (cm)	21 (53.3)	21 (53.3)	21 (53.3)	21 (53.3)
Cutting Height - in (cm)	6 Positions	6 Positions	6 Positions	6 Positions
	1.25-3.5 (3.2-8.9)	1.25-3.5 (3.2-8.9)	1.25-3.5 (3.2-8.9)	1.25-3.5 (3.2-8.9)
Folding Handlebar	Standard One Piece	Standard One Piece	Standard One Piece	Standard One Piece
Adjustable Handlebar	4 Position	4 Position	4 Position	4 Position
Front Wheel Diameter - in (cm)	7.0 (17.8)	7.5 (19.1)	7.5 (19.1)	7.5 (19.1)
Rear Wheel Diameter - in (cm)	10.0 (25.4)	10.5 (26.7)	10.5 (26.7)	10.5 (26.7)
Side Discharge	Standard	N/A	N/A	Standard
Bagger	Standard	Optional	Optional	Standard
Mulching Capability	Standard	Standard	Standard	Standard
Attachments (* denotes it comes with unit)				
Dethatcher	71102400	N/A	71102400	71102400
Mulchmaster Package	*	*	*	*
Leaf Shredder	71102800	71102800	71102800	71102800
Side Discharge Chute	*	N/A	N/A	*
Rear Bagger	*	71103000	71103000	*
Swivel Wheel Kit	71103300	71103300	71103300	71103300
Rear Discharge Chute	71103200	71103200	71103200	71103200
Rear Roller Kit	71103400	71103400	71103400	71103400
Mulching Kit	71103500	71103500	71103500	71103500

Model Number	911070	911071	911072	911073
Description Name	**DLM226SP**	**DLM227SP**	**DLM228SP**	**DLM229SP**
Engine Manufacture	Briggs & Stratton	Tecumseh	Tecumseh	Tecumseh
Cycles	Four	Four	Four	Four
HP (3600RPM)	5.5	6.0	6.0	6.0
Fuel Tank Capacity - qt (L)	1.6 (1.5)	1.5 (1.4)	1.5 (1.4)	1.5 (1.4)
Fuel	Unleaded	Unleaded	Unleaded	Unleaded
Primer Bulb	Standard	Standard	Standard	Standard
Throttle/Choke Control	N/A	N/A	N/A	N/A
Starting	Recoil	Electric/Recoil	Recoil	Recoil
Cylinder Bore	Cast Iron Sleeve	Aluminum	Aluminum	Aluminum
Pressurized Oil System	Standard	Standard	Standard	Standard
Governed RPM	2900+/-100	2850+/-150	2850+/-150	2850+/-150
Crank Case Capacity - oz (L)	20 (0.6)	27 (0.8)	27 (0.8)	27 (0.8)
Air Cleaner	Dual Element	Paper Element	Paper Element	Paper Element
Engine Oil Type	SAE 30	SAE 30	SAE 30	SAE 30
Spark Plug Gap	0.03	0.03	0.03	0.03
Differential	Standard	Standard	Standard	Standard
Variable Speeds-MPH (KPH)	0-4.0 (0-6.4)	0-4.0 (0-6.4)	0-4 (0-6.4))	0-4 (0-6.4)
Mower Deck Gauge	14 Gauge Stamped Steel	14 Gauge Stamped Steel	14 Gauge Stamped Steel	14 Gauge Stamped Steel
Baked Powder Paint	Standard	Standard	Standard	Standard
Cutting Width - in (cm)	21 (53.3)	21 (53.3)	21 (53.3)	21 (53.3)
Cutting Height - in (cm)	6 Positions	6 Positions	6 Positions	6 Positions
	1.25-3.5 (3.2-8.9)	1.25-3.5 (3.2-8.9)	1.25-3.5 (3.2-8.9)	1.25-3.5 (3.2-8.9)
Folding Handlebar	Standard One Piece	Standard One Piece	Standard One Piece	Standard One Piece
Adjustable Handlebar	4 Position	4 Position	4 Position	4 Position
Front Wheel Diameter - in (cm)	7.0 (17.8)	7.5 (19.1)	7.5 (19.1)	7.5 (19.1)
Rear Wheel Diameter - in (cm)	10.0 (25.4)	10.5 (26.7)	10.5 (26.7)	10.5 (26.7)
Side Discharge	Standard	Standard	Standard	Standard
Bagger	Standard	Standard	Standard	Standard
Mulching Capability	Standard	Standard	Standard	Standard
Attachments (* denotes it comes with unit)				
Dethatcher	N/A	N/A	71102400	N/A
Mulchmaster Package	*	*	*	*
Leaf Shredder	71102800	71102800	71102800	71102800
Side Discharge Chute	*	*	*	*
Rear Bagger	*	*	*	*
Swivel Wheel Kit	*	*	71103300	*
Rear Discharge Chute	71103200	71103200	71103200	71103200
Rear Roller Kit	71103400	71103400	71103400	71103400
Mulching Kit	71103500	71103500	71103500	71103500

Model Number	911075	911076	911077	911078
Description Name	DLM21SEW			DLM21SEW
Engine Manufacture	Tecumseh	Tecumseh	Tecumseh	Tecumseh
Cycles	Four	Four	Four	Four
HP (3600RPM)	6.0	5.5	5.5	6.0
Fuel Tank Capacity - qt (L)	1.5 (1.4)	1.5 (1.4)	1.5 (1.4)	1.5 (1.4)
Fuel	Unleaded	Unleaded	Unleaded	Unleaded
Primer Bulb	Standard	Standard	Standard	Standard
Throttle/Choke Control	N/A	N/A	N/A	N/A
Starting	Electric/Recoil	Recoil	Electric/Recoil	Electric/Recoil
Cylinder Bore	Aluminum	Aluminum	Aluminum	Aluminum
Pressurized Oil System	Standard	Standard	Standard	Standard
Governed RPM	2850+/-150	2850+/-150	2850+/-150	2850+/-150
Crank Case Capacity - oz (L)	27 (0.8)	27 (0.8)	27 (0.8)	27 (0.8)
Air Cleaner	Paper Element	Paper Element	Paper Element	Paper Element
Engine Oil Type	SAE 30	SAE 30	SAE 30	SAE 30
Spark Plug Gap	0.03	0.03	0.03	0.03
Differential	Standard	Standard	Standard	Standard
Variable Speeds-MPH (KPH)	0-4 (0-6.4)	0-3.5 (0-5.6)	0-3.5 (0-5.6)	0-4 (0-6.4)
Mower Deck Gauge	14 Gauge Stamped Steel	14 Gauge Stamped Steel	14 Gauge Stamped Steel	14 Gauge Stamped Steel
Baked Powder Paint	Standard	Standard	Standard	Standard
Cutting Width - in (cm)	21 (53.3)	21 (53.3)	21 (53.3)	21 (53.3)
Cutting Height - in (cm)	6 Positions	6 Positions	6 Positions	6 Positions
	1.25-3.5 (3.2-8.9)	1.25-3.5 (3.2-8.9)	1.25-3.5 (3.2-8.9)	1.25-3.5 (3.2-8.9)
Folding Handlebar	Standard One Piece	Standard One Piece	Standard One Piece	Standard One Piece
Adjustable Handlebar	4 Position	4 Position	4 Position	4 Position
Front Wheel Diameter - in (cm)	7.5 (19.1)	7.0 (17.8)	7.5 (19.1)	7.5 (19.1)
Rear Wheel Diameter - in (cm)	10.5 (26.7)	10.0 (25.4)	10.5 (26.7)	10.5 (26.7)
Side Discharge	Standard	Standard	Standard	Standard
Bagger	Standard	Standard	Standard	Standard
Mulching Capability	Standard	With Kit	With Kit	Standard
Attachments (* denotes it comes with unit)				
Dethatcher	N/A	71102400	71102400	N/A
Mulchmaster Package	*	71102700	71102700	*
Leaf Shredder	71102800	71102800	71102800	71102800
Side Discharge Chute	*	71102900	71102900	*
Rear Bagger	*	71103000	71103000	*
Swivel Wheel Kit	*	71103300	71103300	*
Rear Discharge Chute	71103200	71103200	71103200	71103200
Rear Roller Kit	71103400	71103400	71103400	71103400
Mulching Kit	71103500	71103500	71103500	71103500

Model Number	911079	911080	911081	911082
Description Name	**DLM21S**	**DLM21SW**	**SLM21**	**SLM21S**
Engine Manufacture	Tecumseh	Tecumseh	Tecumseh	Tecumseh
Cycles	Four	Four	Four	Four
HP (3600RPM)	6.0	6.0	5.0	5.5
Fuel Tank Capacity - qt (L)	1.5 (1.4)	1.5 (1.4)	1.5 (1.4)	1.5 (1.4)
Fuel	Unleaded	Unleaded	Unleaded	Unleaded
Primer Bulb	Standard	Standard	Standard	Standard
Throttle/Choke Control	N/A	N/A	N/A	N/A
Starting	Recoil	Recoil	Recoil	Recoil
Cylinder Bore	Aluminum	Aluminum	Aluminum	Aluminum
Pressurized Oil System	Standard	Standard	Standard	Standard
Governed RPM	2800+/-200	2800+/-200	3150+/-200	3150+/-200
Crank Case Capacity - oz (L)	27 (0.8)	27 (0.8)	27 (0.8)	27 (0.8)
Air Cleaner	Paper Element	Paper Element	Paper Element	Paper Element
Engine Oil Type	SAE 30	SAE 30	SAE 30	SAE 30
Spark Plug Gap	0.03	0.03	0.03	0.03
Differential	Standard	Standard	N/A	Standard
Variable Speeds-MPH (KPH)	0-4 (0-6.4)	0-4 (0-6.4)	N/A	0-3.5 (0-5.6)
Mower Deck Gauge	14 Gauge Stamped Steel	14 Gauge Stamped Steel	16 Gauge Stamped Steel	16 Gauge Stamped Steel
Baked Powder Paint	Standard	Standard	Standard	Standard
Cutting Width - in (cm)	21 (53.3)	21 (53.3)	21 (53.3)	21 (53.3)
Cutting Height - in (cm)	6 Positions	6 Positions	6 Positions	6 Positions
	1.25-3.5 (3.2-8.9)	1.25-3.5 (3.2-8.9)	1.25-3.5 (3.2-8.9)	1.25-3.5 (3.2-8.9)
Folding Handlebar	Standard One Piece	Standard One Piece	Standard One Piece	Standard One Piece
Adjustable Handlebar	4 Position	4 Position	4 Position	4 Position
Front Wheel Diameter - in (cm)	7.5 (19.1)	7.0 (17.8)	7.5 (19.1)	7.5 (19.1)
Rear Wheel Diameter - in (cm)	10.5 (26.7)	10.0 (25.4)	10.5 (26.7)	10.5 (26.7)
Side Discharge	Standard	Standard	N/A	N/A
Bagger	Standard	Standard	Standard	Standard
Mulching Capability	Standard	Standard	Standard	With Kit
Attachments (* denotes it comes with unit)				
Dethatcher	71102400	N/A	N/A	71102400
Mulchmaster Package	*	*	*	*
Leaf Shredder	71102800	71102800	71102800	71102800
Side Discharge Chute	*	*	N/A	N/A
Rear Bagger	*	*	*	*
Swivel Wheel Kit	71103300	*	71103300	71103300
Rear Discharge Chute	71103200	71103200	71103200	71103200
Rear Roller Kit	71103400	71103400	71103400	71103400
Mulching Kit	71103500	71103500	71103500	71103500

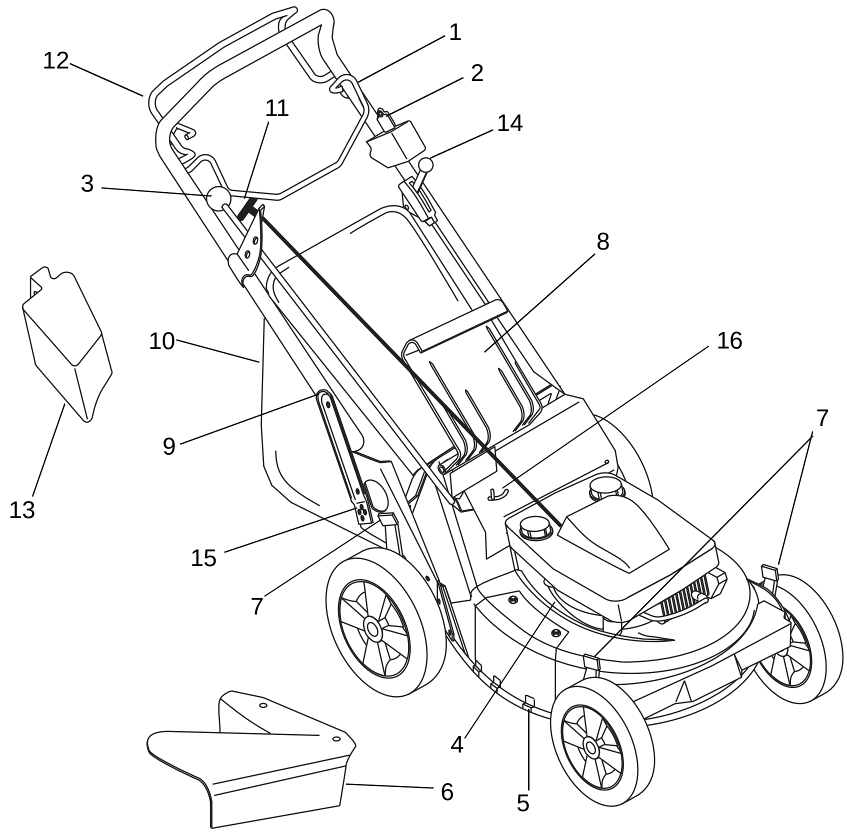
Model Number	911083	911084	911304	911311
Description Name	**DLM21C**	**DLM21SC**	**LM21**	**LM21S**
Engine Manufacture	Robin	Robin	Briggs & Stratton	Briggs & Stratton
Cycles	Four	Four	Four	Four
HP (3600RPM)	6.0	6.0	5.0	5.0
Fuel Tank Capacity - qt (L)	1.5 (1.4)	1.5 (1.4)	1.5 (1.4)	1.5 (1.4)
Fuel	Unleaded	Unleaded	Unleaded	Unleaded
Primer Bulb	N/A	N/A	N/A	N/A
Throttle/Choke Control	Standard	Standard	Standard	Standard
Starting	Recoil	Recoil	Recoil	Recoil
Cylinder Bore	Cast Iron Sleeve	Cast Iron Sleeve	Aluminum	Aluminum
Pressurized Oil System	Standard	Standard	Standard	Standard
Governed RPM	2850+/-150	2850+/-150	2900+/-100	2900+/-100
Crank Case Capacity - oz (L)	17 (0.5)	17 (0.5)	20 (0.6)	20 (0.6)
Air Cleaner	Dual Element	Dual Element	Paper Element	Paper Element
Engine Oil Type	SAE 30	SAE 30	SAE 30	SAE 30
Spark Plug Gap	0.03	0.03	0.03	0.03
Differential	N/A	Standard	N/A	Standard
Variable Speeds-MPH (KPH)	N/A	0-4 (0-6.4)	0-4 (0-6.4)	0-4 (0-6.4)
Mower Deck Gauge	14 Gauge Stamped Steel	14 Gauge Stamped Steel	14 Gauge Stamped Steel	14 Gauge Stamped Steel
Baked Powder Paint	Standard	Standard	Standard	Standard
Cutting Width - in (cm)	21 (53.3)	21 (53.3)	21 (53.3)	21 (53.3)
Cutting Height - in (cm)	6 Positions	6 Positions	6 Positions	6 Positions
	1.25-3.5 (3.2-8.9)	1.25-3.5 (3.2-8.9)	1.25-3.5 (3.2-8.9)	1.25-3.5 (3.2-8.9)
Folding Handlebar	Standard One Piece	Standard One Piece	Standard One Piece	Standard One Piece
Adjustable Handlebar	4 Position	4 Position	4 Position	4 Position
Front Wheel Diameter - in (cm)	7.0 (17.8)	7.0 (17.8)	7.5 (19.1)	7.5 (19.1)
Rear Wheel Diameter - in (cm)	10.0 (25.4)	10.0 (25.4)	10.5 (26.7)	10.5 (26.7)
Side Discharge	Standard	Standard	Standard	Standard
Bagger	Standard	Standard	Standard	Standard
Mulching Capability	Standard	Standard	With Kit	With Kit
Attachments (* denotes it comes with unit)				
Dethatcher	N/A	71102400	N/A	71102400
Mulchmaster Package	*	*	71102700	71102700
Leaf Shredder	71102800	71102800	71102800	71102800
Side Discharge Chute	*	*	*	*
Rear Bagger	*	*	*	*
Swivel Wheel Kit	71103300	71103300	71103300	71103300
Rear Discharge Chute	71103200	71103200	71103200	71103200
Rear Roller Kit	71103400	71103400	71103400	71103400
Mulching Kit	71103500	71103500	71103500	71103500

Model Number	911463	911467	911468	911469
Description Name	**DLM239**	**SLM237**	**SLM238SP**	**DLM232SP**
Engine Manufacture	Robin	Tecumseh	Tecumseh	Briggs & Stratton
Cycles	Four	Four	Four	Four
HP (3600RPM)	6.0	5.0	5.5	5.5
Fuel Tank Capacity - qt (L)	1.5 (1.4)	1.5 (1.4)	1.5 (1.4)	1.6 (1.5)
Fuel	Unleaded	Unleaded	Unleaded	Unleaded
Primer Bulb	N/A	Standard	Standard	Standard
Throttle/Choke Control	Standard	N/A	N/A	N/A
Starting	Recoil	Recoil	Recoil	Recoil
Cylinder Bore	Cast Iron Sleeve	Aluminum	Aluminum	Cast Iron Sleeve
Pressurized Oil System	Standard	Standard	Standard	Standard
Governed RPM	2900+/-100	3200+/-150	3200+/-150	2900+/-100
Crank Case Capacity - oz (L)	17 (0.5)	27 (0.8)	27 (0.8)	20 (0.6)
Air Cleaner	Dual Element	Paper Element	Paper Element	Dual Clean
Engine Oil Type	SAE 30	SAE 30	SAE 30	SAE 30
Spark Plug Gap	0.03	0.03	0.03	0.03
Differential	N/A	N/A	Standard	Standard
Variable Speeds-MPH (KPH)	N/A	N/A	0-3.5 (0-5.6)	0-4 (0-6.4)
Mower Deck Gauge	14 Gauge Stamped Steel	16 Gauge Stamped Steel	16 Gauge Stamped Steel	14 Gauge Stamped Steel
Baked Powder Paint	Standard	Standard	Standard	Standard
Cutting Width - in (cm)	21 (53.3)	21 (53.3)	21 (53.3)	21 (53.3)
Cutting Height - in (cm)	6 Positions	6 Positions	6 Positions	6 Positions
	1.25-3.5 (3.2-8.9)	1.25-3.5 (3.2-8.9)	1.25-3.5 (3.2-8.9)	1.25-3.5 (3.2-8.9)
Folding Handlebar	Standard One Piece	Standard One Piece	Standard One Piece	Standard One Piece
Adjustable Handlebar	4 Position	4 Position	4 Position	4 Position
Front Wheel Diameter - in (cm)	7.0 (17.8)	7.5 (19.1)	7.5 (19.1)	7.5 (19.1)
Rear Wheel Diameter - in (cm)	10.0 (25.4)	10.5 (26.7)	10.5 (26.7)	10.5 (26.7)
Side Discharge	Standard	N/A	N/A	Standard
Bagger	Standard	Standard	Standard	Standard
Mulching Capability	Standard	Standard	Standard	Standard
Attachments (* denotes it comes with unit)				
Dethatcher	N/A	N/A	71102400	71102400
Mulchmaster Package	*	*	*	*
Leaf Shredder	71102800	71102800	71102800	71102800
Side Discharge Chute	*	N/A	N/A	*
Rear Bagger	*	*	*	*
Swivel Wheel Kit	71103300	71103300	71103300	71103300
Rear Discharge Chute	71103200	71103200	71103200	71103200
Rear Roller Kit	71103400	71103400	71103400	71103400
Mulching Kit	71103500	71103500	71103500	71103500

Model Number	911475	911509	911511	911513
Description Name	**DLM240SP**	**LM21SCH**	**LM21SC**	**LM21**
Engine Manufacture	Robin	Robin	Robin	Briggs & Stratton
Cycles	Four	Four	Four	Four
HP (3600RPM)	6.0	5.4	5.3	4.37
Fuel Tank Capacity - qt (L)	1.5 (1.4)	2.0 (1.9)	2 (1.9)	22 oz. (0.65)
Fuel	Unleaded	Unleaded	Unleaded	Unleaded
Primer Bulb	N/A	N/A	N/A	Standard
Throttle/Choke Control	Standard	Standard	Standard	N/A
Starting	Recoil	Recoil	Recoil	Recoil
Cylinder Bore	Cast Iron Sleeve	Aluminum	Cast Iron Sleeve	Aluminum
Pressurized Oil System	Standard	Splash	Pressurized	Splash
Governed RPM	2900+/-100	3000+/-100	3000+/-100	3000+/-100
Crank Case Capacity - oz (L)	27 (0.8)	17 (0.5)	17 (0.5)	22 (0.65)
Air Cleaner	Dual Element	Dual Element	Dual Element	Paper Element
Engine Oil Type	SAE 30	SAE 30	SAE 30	SAE 30
Spark Plug Gap	0.03	0.03	0.03	0.03
Differential	Standard	Standard	Standard	N/A
Variable Speeds-MPH (KPH)	0-4 (0-6.4)	1.55, 2.98, 3.8 (2.48, 4.77, 6.08)	0-3.5 (0-5.6)	N/A
Mower Deck Gauge	14 Gauge Stamped Steel	14 Gauge Stamped Steel	14 Gauge Stamped Steel	14 Gauge Stamped Steel
Baked Powder Paint	Standard	Standard	Standard	Standard
Cutting Width - in (cm)	21 (53.3)	21 (53.3)	21 (53.3)	21 (53.3)
Cutting Height - in (cm)	6 Positions	6 Positions 1.25-3.5	6 Positions	6 Positions
	1.25-3.5 (3.2-8.9)	1-3.5 (3.2-8.9)	1.25-3.5 (3.2-8.9)	1.25-3.5 (3.2-8.9)
Folding Handlebar	Standard One Piece	Standard One Piece	Standard One Piece	Standard One Piece
Adjustable Handlebar	4 Position	4 Position	4 Position	4 Position
Front Wheel Diameter - in (cm)	7.0 (17.8)	8 (20.3)	7.5 (19.1)	7.5 (19.1)
Rear Wheel Diameter - in (cm)	10.0 (25.4)	8 (20.3)	10.5 (26.7)	10.5 (26.7)
Side Discharge	Standard	Standard	Standard	Standard
Bagger	Standard	Standard	Standard	Standard
Mulching Capability	Standard	Standard	Standard	Standard
Attachments (* denotes it comes with unit)				
Dethatcher	71102400	71102400	71102400	71102400
Mulchmaster Package	*	71102700	*	*
Leaf Shredder	71102800	71103700	71102800	71102800
Side Discharge Chute	*	*	*	*
Rear Bagger	*	*	*	*
Swivel Wheel Kit	71103300	71104000	71103300	71103300
Rear Discharge Chute	71103200	71103200	71103200	71103200
Rear Roller Kit	71103400	71103400	71103400	71103400
Mulching Kit	71103500	71103500	71103500	71103500

Model Number	911514	911515	911516	911517
Description Name	**LM21S**	**LM21SE**	**LM21SW**	**LM21SC**
Engine Manufacture	Briggs & Stratton	Briggs & Stratton	Briggs & Stratton	Robin
Cycles	Four	Four	Four	Four
HP (3600RPM)	4.37	4.37	4.37	5.3
Fuel Tank Capacity - qt (L)	22 oz. (0.65)	22 oz (0.65)	22 oz (0.65)	2 (1.9)
Fuel	Unleaded	Unleaded	Unleaded	Unleaded
Primer Bulb	Standard	Standard	Standard	N/A
Throttle/Choke Control	N/A	N/A	N/A	Standard
Starting	Recoil	Electric/Recoil	Recoil	Recoil
Cylinder Bore	Aluminum	Aluminum	Aluminum	Cast Iron Sleeve
Pressurized Oil System	Splash	Splash	Splash	Pressurized
Governed RPM	3000+/-100	3000+/-100	3000+/-100	3000+/-100
Crank Case Capacity - oz (L)	22 (0.65)	22 (0.65)	22 (0.65)	17 (0.5)
Air Cleaner	Paper Element	Paper Element	Paper Element	Dual Element
Engine Oil Type	SAE 30	SAE 30	SAE 30	SAE 30
Spark Plug Gap	0.03	0.03	0.03	0.03
Differential	Standard	Standard	N/A	Standard
Variable Speeds-MPH (KPH)	0-4 (0-6.4)	0-4 (0-6.4)	N/A	0-3.5 (0-5.6)
Mower Deck Gauge	14 Gauge Stamped Steel	14 Gauge Stamped Steel	14 Gauge Stamped Steel	14 Gauge Stamped Steel
Baked Powder Paint	Standard	Standard	Standard	Standard
Cutting Width - in (cm)	21 (53.3)	21 (53.3)	21 (53.3)	21 (53.3)
Cutting Height - in (cm)	6 Positions	6 Positions	6 Positions	6 Positions
	1.25-3.5 (3.2-8.9)	1.25-3.5 (3.2-8.9)	1.25-3.5 (3.2-8.9)	1.25-3.5 (3.2-8.9)
Folding Handlebar	Standard One Piece	Standard One Piece	Standard One Piece	Standard One Piece
Adjustable Handlebar	4 Position	4 Position	4 Position	4 Position
Front Wheel Diameter - in (cm)	7.5 (19.1)	7.0 (17.8)	7.5 (19.1)	7.5 (19.1)
Rear Wheel Diameter - in (cm)	10.5 (26.7)	10.0 (25.4)	10.5 (26.7)	10.5 (26.7)
Side Discharge	Standard	Standard	Standard	Standard
Bagger	Standard	Standard	Standard	Standard
Mulching Capability	Standard	Standard	Standard	Standard
Attachments (* denotes it comes with unit)				
Dethatcher	71102400	71102400	N/A	71102400
Mulchmaster Package	*	*	*	71102700
Leaf Shredder	71102800	71102800	71102800	71102800
Side Discharge Chute	*	*	*	*
Rear Bagger	*	*	*	*
Swivel Wheel Kit	71103300	71103300	*	71103300
Rear Discharge Chute	71103200	71103200	71103200	71103200
Rear Roller Kit	71103400	71103400	71103400	71103400
Mulching Kit	71103500	71103500	71103500	71103500

4.1 CONTROLS AND FEATURES



1. Engine Control
2. Ignition Switch (Electric Start Models)
3. Speed Selector (Self-propelled)
4. Primer (Briggs Engine)
5. Side Discharge Cover
6. Side Discharge Deflector
7. Cutting Height Levers (2 Rear Wheel Adjusters, 2 Front Wheel Adjusters
8. Rear Door
9. Adjustable and Folding Handlebars
10. Grass Bag
11. Recoil
12. Wheel Drive Control
13. Mulchmaster™ Plug
14. Throttle Control (Robin Engines)
15. Handlebar Adjustment Holes
16. Speed Indicator (Self-propelled)

OM0032

Figure 2

4.2 SERVICE POSITIONS

Place unit on a flat level surface. ALWAYS stop engine. Assure unit is secure and will not tip over. Strap and clamp onto bench if needed.

A handlebar service position is provided for tipping the unit for cleaning and service (Figure 3). See *Adjustments*.

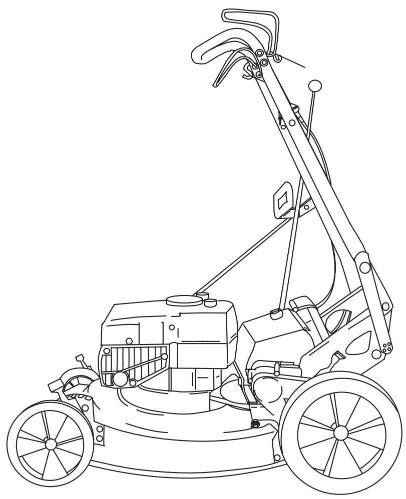


Figure 3

OM0210

WARNING: ACCIDENTAL ENGINE START UP can cause death or serious injury. ALWAYS stop engine, remove key, wait for moving parts to stop and remove wire from spark plug before adjusting or servicing.

CAUTION: FUEL SPILLS may result in minor or moderate injury and/or damage to the unit. Before unit is tipped up onto housing, remove enough fuel so that no spillage will occur. Remove battery to prevent spillage of electrolyte.

IMPORTANT: When tipping to service engine or unit, use the following service positions for the brand and type of engine on your mower:

Tecumseh & Robin Engines: Place handlebar into service position and tip machine to the rear.

Briggs & Stratton Intek Engines: Place handlebar into handlebar service position and tip the machine to the left, opposite the discharge opening.

Kawasaki: Place handlebar in service position and tip unit to right.

IMPORTANT: If engine becomes "flooded" due to tipping, clean air cleaner and remove spark plug, put one teaspoon of oil in cylinder, turn engine over a few times and reinstall spark plug.

4.3 FILLING THE FUEL TANK

WARNING: EXPLOSIVE VAPORS and its **FLAMMABLE FUEL** can result in death or serious injury. Handle fuel with care.

ALWAYS use an approved fuel container.

No Smoking! No lighted Materials!

No Open Flame!

Allow engine to cool before maintenance. Gasoline is highly flammable and must be handled with care. Allow engine to cool several minutes before removing fuel tank cap. Never fill tank when engine is running or is hot from operation. DO NOT allow open flame, matches, or smoking in area. DO NOT overfill. Allow about 1/4" of tank space for fuel expansion. Wipe up any spills and allow vapors to dissipate before starting engine. Use approved gasoline container.

To add fuel to fuel tank:

1. Put unit in open or well-ventilated area.
2. Stop engine and allow to cool.
3. Clean fuel cap and surrounding area to prevent dust, dirt and debris from entering fuel tank.
4. Remove cap.

IMPORTANT: DO NOT use gasohol or gasoline containing alcohol because alcohol will cause internal parts to deteriorate. See Engine Manual for correct type and grade of fuel.

5. Fill fuel tank. (See *Specifications* for tank capacity.)
6. Replace fuel cap and tighten.
7. **ALWAYS** clean up any spilled fuel.

4.4 GENERAL LUBRICATION

Swivel Lubrication (swivel units)

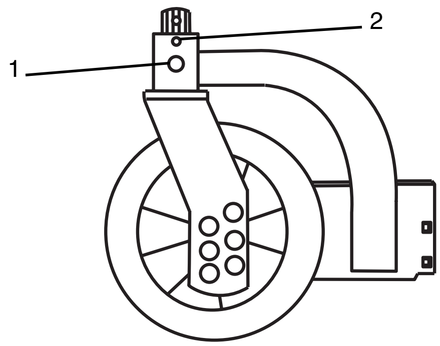
See Figure 4.

Apply ***Sten Mix*** Hi-Temp Grease or equivalent to the lube fittings. Order P/N: 00036800 - 3 pack of 3 oz. cartridges.

When using Sten Mix Grease for the first time, all components should be thoroughly cleaned prior to lubricating.

Commercial Models

Grease fittings on rear axle housing every 25 hours.



1. Grease Fitting
2. Swivel Lock Hole

Figure 4

OM0210

4.5 CHECK MOWER BLADE

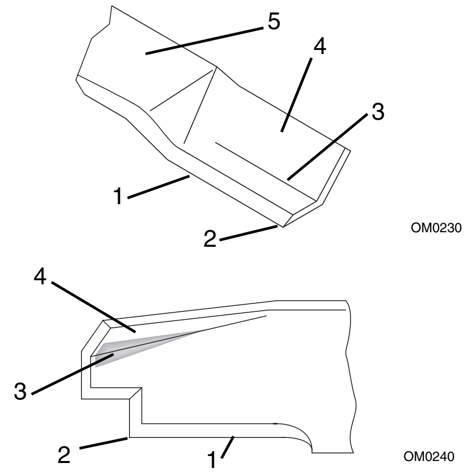
See Figures 5 and 6.

Regularly check mower blades for wear and that lock washer is fully compressed by cap screw (requires 25-30 ft-lbs (33-40 Nm) of torque on cap screw).

When blade needs sharpening:

1. Block blade to prevent rotation.
2. Remove cap screw, lock washer and blade from shaft.
3. Sharpen both ends of blade at original angle (25°), removing equal amounts of material from each end to maintain proper blade balance. New blades are balanced to within 1.3 in. oz. at factory. DO NOT grind around corner at tip of blade. If cutting edge of blade cannot be sharpened in a straight line to within 1/8 of an inch of its end, replace blade with Ariens replacement blade only.
4. Install blade, lock washer and tighten cap screw 25-30 ft-lbs (33-40 Nm) until lock washer is fully compressed.

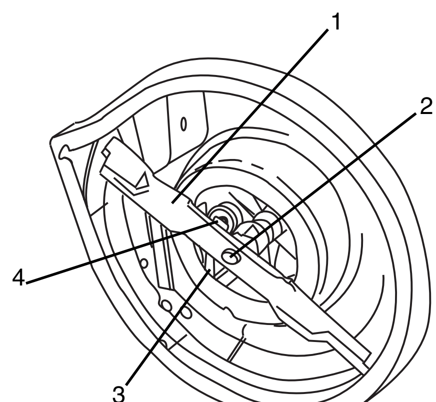
IMPORTANT: If mower is used under sandy soil conditions, replace blades when air lifts become eroded.



1. Cutting Edge
2. Square Corner
3. Air Lift Erosion
4. Air Lift
5. Reverse Lift

Figure 5

4.6 CHECK DRIVE BELT



1. Blade
2. Cap Screw, Lock Washer & Flat Washer
3. Drive Belt
4. Idler

Figure 6

OM0250

Check drive belt for wear or damage. Replace belt if worn or damaged.

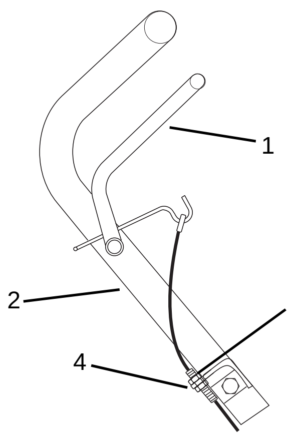
4.7 CHECK ENGINE/BLADE CONTROL

The engine/blade control must stop the engine and blade within 3 seconds after the bail is released. If the engine or blade continues to run, adjust or repair control immediately.

Engine control must stop engine ignition, at 3/4" to 1-1/4" from handlebar as control is released.

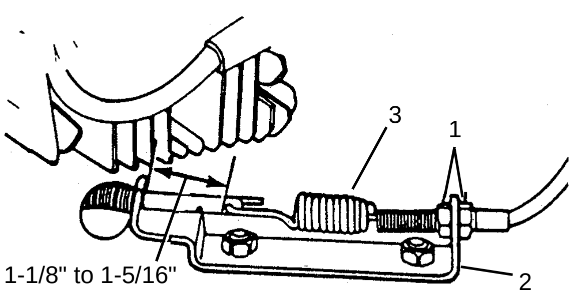
To check (Figure 7):

1. Start engine and slowly release control until engine stops firing.
2. Measure distance between handlebar and control at the point that engine stopped firing.
3. Turn cable nuts at handlebar mount clockwise if measurement is more than 1-1/4" or counter-clockwise if measurement is less than 3/4".
4. Turn nuts against mount to lock in position.



1. Engine Control
2. Handlebar
3. Cable Nuts
4. Mount

Figure 7 OM0280



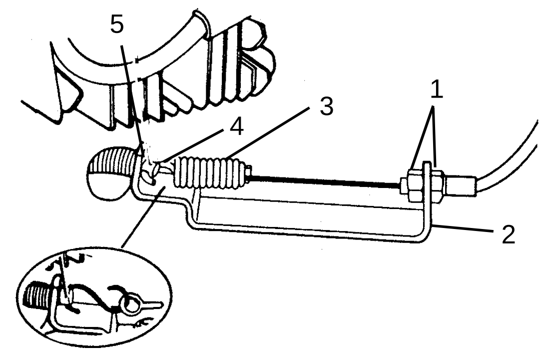
1. Cable Nuts
2. Bracket
3. Spring

Figure 8

There must not be slack in cable.

To check, rotate blade in it's cutting direction (this draws control rod fully in).

To eliminate slack in cable, turn nuts on cable at handlebar clockwise.



1. Cable Nuts
2. Bracket
3. Spring
4. Spring or "S" Hook
5. Control Rod

Figure 9

4.8 CHECK GRASS BAG

Check bag for wear or damage. Keep bag clean and dry. Replace only with Ariens original equipment replacement bag.

4.9 CHECK DRIVE CONTROL

Check operation of drive control. The drive must disengage completely when the bail handle is released. Adjust bail travel if necessary. See Figure 10.

When the wheel drive control is squeezed toward the handlebar, the extension spring, located at the bottom end of the traction cable, must start to extend when the control is between 1-1/2" and 2" (3.8 and 5 cm) away from the handlebar. To check:

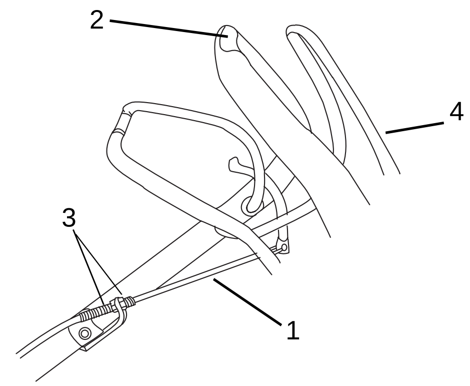
1. Squeeze the wheel drive control toward the handlebar until the spring starts to open.
2. Measure the distance between the wheel drive control and handlebar at the handlebar indentation.
3. To obtain the proper adjustment, turn the cable nuts. Turn clockwise if the measurement is more than 2"; counterclockwise if the measurement is less than 1-1/2". Tighten the nuts against the bracket to lock in position. If there is not enough thread length for adjustment, the opposite end of the cable can be adjusted.

Three Speed Drive Control

When the wheel drive control bail is squeezed toward the handlebar, the extension spring must start to extend when the control bail is between 3-7/8" to 4-1/8" away from the handlebar. The extension spring is located at the bottom end of the traction control cable.

To check the control cable spring:

1. Squeeze the wheel drive control bail towards the handlebar until the spring starts to open.
2. Measure the distance between the wheel drive bail to the handlebar indentation.
3. To obtain the proper adjustments turn the control cable nuts at the handlebar or the bottom of the control cable anchor against the anchor supports.

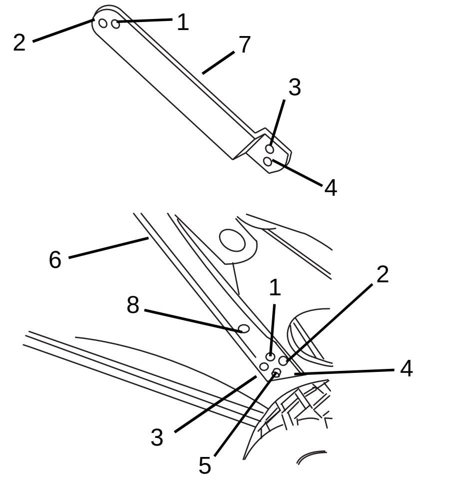


1. Traction Cable
2. Handlebar Indentation
3. Cable Nuts
4. Wheel Drive Control

Figure 10

4.10 HANDLEBAR ADJUSTMENT

Holes in handlebar braces provide four height positions, a service position, and a storage position (except on professional models).



1. Hole No. 1
2. Hole No. 2
3. Hole No. 3
4. Hole No. 4
5. Handlebar Stud
6. Handlebar Adjustment Link
7. Professional Bracket
8. Storage Position

Figure 11

OM0271

Use one of the four holes to adjust handlebar height to a safe, comfortable position. Place bolt on handlebar bracket through one of holes 1, 2, 3 or 4 in order of increasing height (See Figure 11).

NOTE: On Professional models nuts and bolts replace pins.

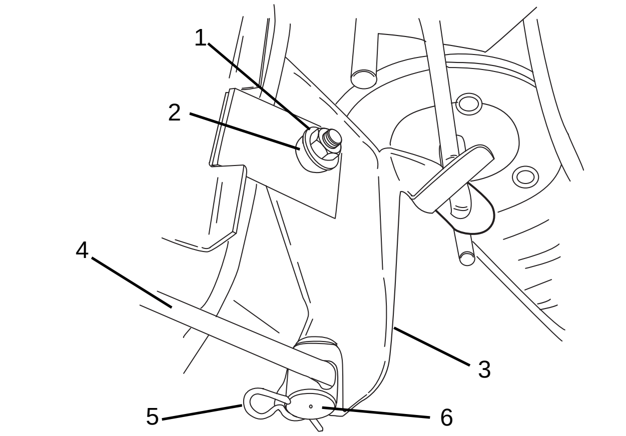
For storage, rotate handlebar forward and place pins through holes further up braces.

4.11 SPEED CONTROL BELL CRANK

The speed control bell crank holds the speed selector rod in position after a speed has been set. The spring washers may become loose with normal wear. If the speed selector rod does not stay firmly in position, adjust the speed control bell crank. See Figure 12.

To adjust:

1. Remove cover, fully compress the helical spring lockwashers with lock nut and then back lock nut off, one half turn.
2. If the speed selector rod is still too loose, tighten lock nut by small increments until it holds its position. Tightening the lock nut too much will not allow the speed selector rod to move at all.
3. Align notch in left hand side of cover with bolt and secure with knob.



1. Lock Nut
2. Helical Spring Lockwashers
3. Speed Control Bell Crank
4. Speed Selector Rod
5. Hair Pin
6. Swivel

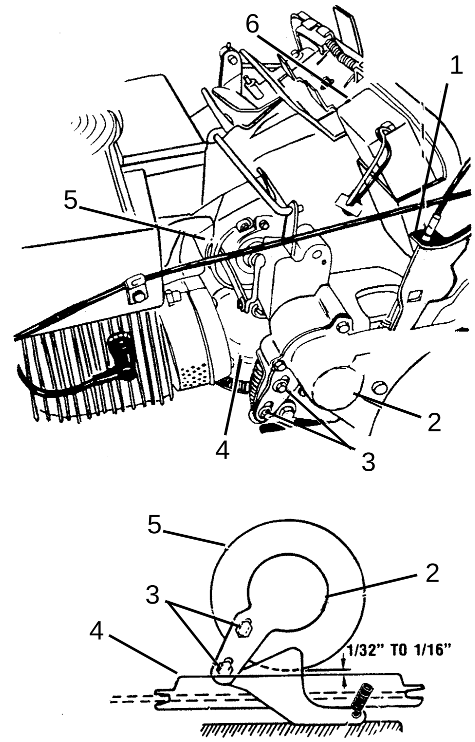
Figure 12

4.12 FRICTION WHEEL ADJUSTMENT

Early Models (Side Pull)

Adjust rear cutting height levers to middle position. Check to be sure there is slack in the friction wheel drive cable, if not readjust cable nuts.

Set speed selector at slowest speed and loosen the two cap screws on drive mount. Hold lever securing drive cable down toward mower pan and adjust drive assembly to bring friction wheel to within 1/16" above drive disk. Tighten cap screws. Check for proper function of friction wheel and speed selector. Adjust cable nuts to remove slack.



1. Cable Nuts
2. Drive Mount
3. Adjustment Screws
4. Drive Disk
5. Friction Wheel
6. Battery

Figure 13

SECTION 5 - ENGINE

5.1 ENGINE TROUBLESHOOTING

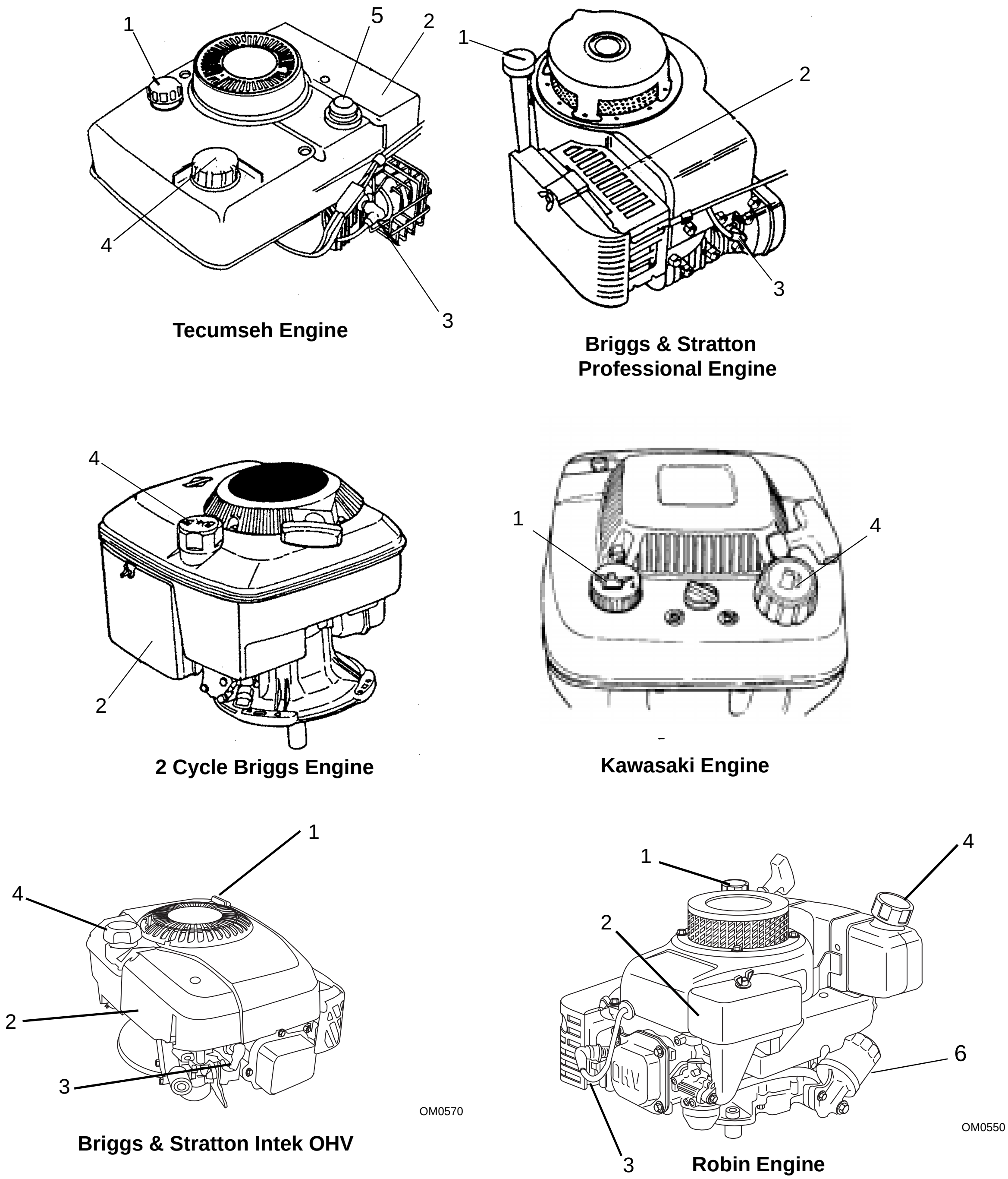
The following troubleshooting chart is to be used to isolate engine problems and give possible causes and corrective action responses.

The troubleshooting key is generic and can be used for several types of engines. Use only those possible causes and corrective actions that apply to the unit.

TROUBLE	POSSIBLE CAUSES (Refer to Key Below)	CORRECTIVE ACTION
Black Exhaust	1, 20, 22, 25, 29, 31, 32, 33	repair or replace
Blue/White Exhaust	4, 20, 25, 31, 33, 34	repair or replace
Difficult Starting	1, 5, 7, 8, 9, 10, 20, 21, 22, 29, 31, 32, 33	repair or replace
Erratic Running	1, 7, 8, 9, 10, 20, 21, 23, 26, 29, 33, 59, 62	repair or replace
Excessive Fuel Consumption	1, 20, 22, 23, 25, 39, 31, 32, 33	repair or replace
High Oil Pressure	4, 41	repair or replace
Knocking	22, 26, 29, 31, 33, 36, 46, 59	repair or replace
Loss of Power or System	1, 8, 10, 20, 21, 22, 23, 25, 26, 31, 32, 33	repair or replace
Low Cranking Power	2, 3, 4, 11	repair or replace
Low Oil Pressure	4, 36, 37, 39	repair or replace
Misfiring	10, 20, 25, 26, 28, 29, 32	repair or replace
Overheating	1, 19, 25,	repair or replace
Poor Compression	25, 28, 29, 31, 32, 33, 34,59,	repair or replace
Starts and Stops	1, 6, 10, 62	repair or replace see electrical systems see engine service manual
Vibration	20, 23, 25, 26, 29, 33, 45, 49	repair or replace
Will Not Crank	2, 11, 45	charge battery or replace
Will Not Start	1, 10, 62	repair or replace see electrical systems see engine service manual

TROUBLESHOOTING KEY					
1	Restriction in air cleaner	22	Incorrect grade of fuel	43	Faulty suction pipe
2	Bad electrical connection	23	Sticking throttle/restricted movement	44	Choked oil filter
3	Faulty starter motor	24	Exhaust pipe restriction	45	Bad solenoid switch
4	Incorrect grade of lubricating oil	25	Leaking cylinder head gasket	46	Incorrect piston height
5	Low cranking speed	26	Overheating	47	Damaged fan
6	Fuel tank empty	27	Cold running	48	Faulty engine mounting
7	Controls not in correct operation position	28	Incorrect tappet adjustment	49	Incorrectly aligned flywheel and/or flywheel housing
8	Blocked fuel feed line	29	Sticking valves	50	Faulty thermostat
9	Faulty fuel lift pump	30	Incorrect high pressure pipes	51	Restriction in water jacket
10	Choked fuel filter	31	Worn cylinder bores	52	Loose fan belt
11	Battery capacity low	32	Pitted valves and seats	53	Choked radiator
12	Air in fuel system	33	Broken, worn or sticking piston ring(s)	54	Faulty water pump
13	Faulty fuel injection pump	34	Worn valve stems and guides	55	Choked breather pipe
14	Faulty fuel injectors or incorrect type	35	Restriction in air cleaner	56	Damaged valve stem oil deflector (if fitted)
15	Incorrect use of cold start equipment	36	Worn or damaged bearings	57	Coolant level too low
16	Faulty cold start equipment	37	Insufficient oil in sump	58	Blocked sump strainer
17	Broken fuel injection pump drive	38	Bad/defective oil temperature switch	59	Broken valve spring
18	Incorrect fuel pump timing	39	Oil pump worn	60	Exhaust or vacuum pipe leak
19	Incorrect valve timing	40	Pressure relief valve sticking open	61	Bad or defective water temperature switch
20	Poor compression	41	Pressure relief valve sticking closed	62	Bad spark plug(s)
21	Blocked fuel tank vent	42	Broken relief valve spring		

5.2 ENGINE SERVICE LOCATIONS



1. Oil Fill Cap and Dipstick
2. Air Cleaner
3. Spark Plug and Wire
4. Fuel Cap and Tank
5. Primer
6. Filter

Figure 14

5.3 ENGINE OIL

IMPORTANT: Change engine crankcase oil after first two (2) hours of operation. Thereafter, change oil every twenty five hours of operation (more often in dusty dirty conditions). Refer to Engine Manual for oil type and grade and detailed instructions.

Engine Oil Check and Change

The engine crankcase oil should be checked daily or every five (5) hours of operation. Oil level MUST be maintained in safe operating range on dipstick at all times or engine damage will result.

IMPORTANT: DO NOT overfill. Be sure engine is level when adding oil.

See Engine Manual for detailed instructions.

5.4 AIR CLEANER

Inspect air cleaner every twenty five hours of operation or every three months, whichever comes first.

When dirty, foam filter elements should be removed and cleaned. Refer to the following instructions.

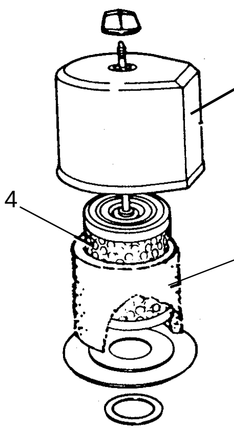
NOTE: Inspect air cleaner more often if unit is used under dirty, dusty conditions.

Foam Filter Element - (Pre Cleaner) - Wash foam elements in warm water and detergent. Rinse thoroughly until all traces of detergent are eliminated. Squeeze (don’t wring) away excess water and air dry.

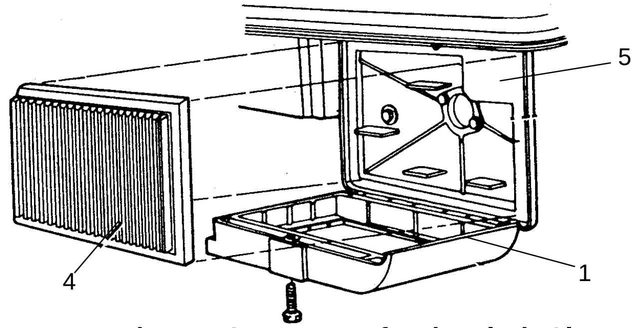
Soak foam element in clean, fresh oil, wrap in paper towel or rag, and squeeze out excess oil.

Cartridge - Paper cartridge is to be replaced when it is dirty or becomes distorted.

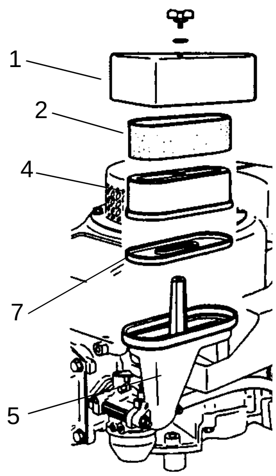
NOTE: DO NOT attempt to clean paper elements.



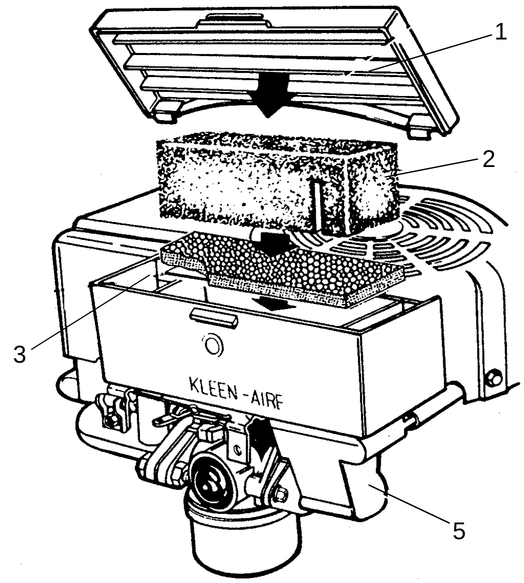
**Briggs & Stratton
Air Cleaner**



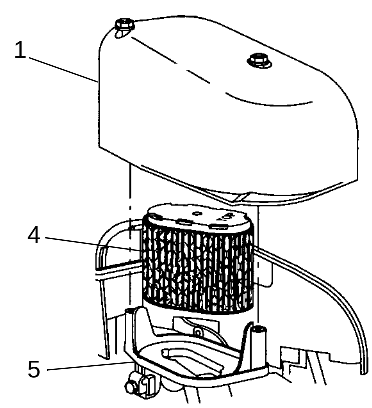
Briggs & Stratton Professional Air Cleaner



Robin Air Cleaner



Tecumseh Air Cleaner



**Briggs & Stratton
Air Cleaner**

1. Cover
2. Foam Filter Element (Pre-Cleaner)
3. Felt Filter Element
4. Cartridge
5. Body
6. Base Plate Gasket
7. Base Plate

Figure 15

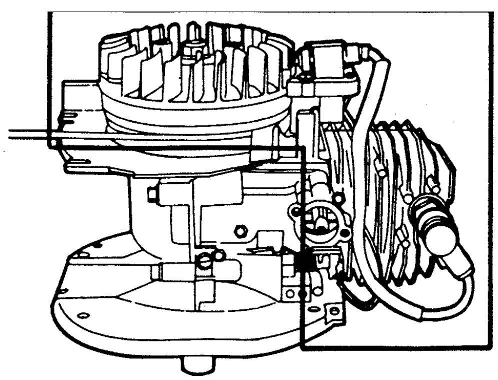
5.5 ENGINE COOLING

The engine is air cooled. Air must circulate freely around engine and over cooling fins on cylinder head and block to prevent overheating.

Once a year or every one hundred (100) operating hours (more if conditions require) clean engine fins and external surfaces of engine of dust, dirt, and oil deposits which can contribute to improper cooling.

Keep Areas within Heavy Line Clean of all Debris (Figure 16).

> **CAUTION:** Periodically clean muffler and manifold areas to remove all grass, dirt and all combustible debris. If engine muffler is equipped with spark arrester screen assembly, remove every 50 hours for cleaning and inspection.



Keep Areas Within Heavy Line Clear of all Debris

Figure 16

5.6 SPARK PLUG

Spark plug should be cleaned or replaced and gap reset to .030" every 100 hours of operation or yearly whichever comes first.

To clean, remove debris from area around spark plug base. Remove spark plug from engine. Scrape and wash with a commercial solvent. DO NOT blast clean.

NOTE: Sparking can occur if wire terminal does not fit firmly on spark plug. Reform terminal if necessary.

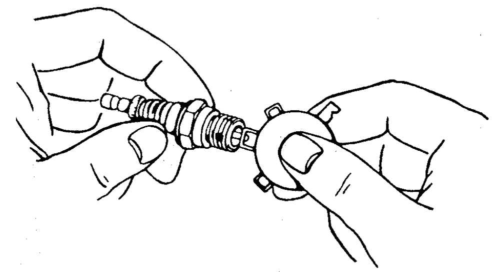


Figure 17

5.7 BATTERY (ELECTRIC START MODEL)

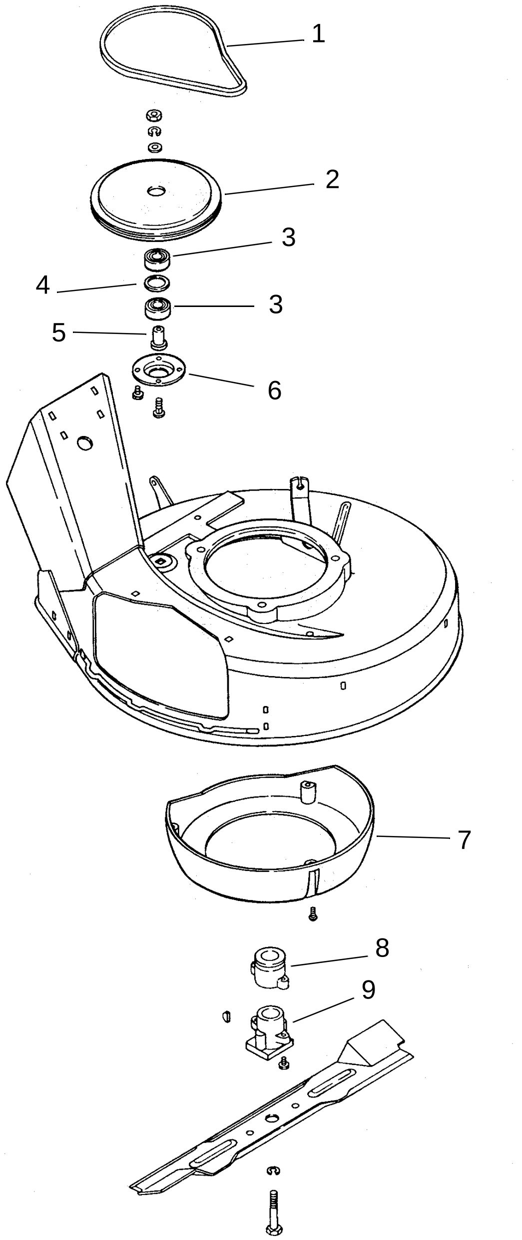
> **CAUTION:** Do not put battery in fire or mutilate; battery may burst or release toxic materials. Do not short circuit; battery may cause burns.

A 12 volt, 2.5 ampere hour sealed lead acid battery is supplied with unit. Engine alternator will normally keep battery fully charged with a 3 to 5 minute start/run cycle.

IMPORTANT: Use battery supplied only. DO NOT attempt to "jump start" mower.

If battery discharges, use a 5 to 10 minute start/run cycle to recharge battery, or use a battery charger (a battery charger, kit number 71104300, is available from Ariens). An engine run time of at least 8 hours is required to charge a fully discharged battery.

To charge with Ariens battery charger, connect charger plug to mating plug on battery (not engine) and plug charger into 120 volt Alternating Current (AC) outlet. Charge for 12 to 36 hours (battery may be charged for up to 56 hours with no harmful effect).



1. Drive Belt
2. Drive Disk
3. Ball Bearing
4. Washer
5. Spindle
6. Bearing Retainer
7. Center Baffle
8. Traction Drive Pulley
9. Blade Adapter

Figure 18

6.1 BLADE BRAKE/CLUTCH REMOVAL

Remove mower blade.

Squeeze brake/clutch bail against handlebar and insert cotter pin into open hole of actuating rod.

Remove 3/8-24x2-1/2" cap screw that retains brake, blade, clutch (BBC) leaf spring and leaf spring from shaft.

Remove BBC flywheel by securing flywheel with BBC wrench (P/N 000239). Remove flywheel and cotter pin securing actuator rod to brake actuator.

Remove three nuts and remove brake actuator from unit.

Inspect parts for wear and or damage, replace as necessary. Assemble in reverse order.

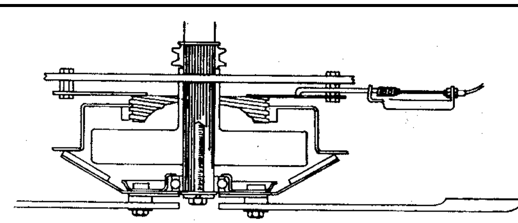
NOTE: When attaching actuator rod to brake actuator, brake actuator is to be rotated all the way up so proper hole is aligned.

On models with key, position key in crankshaft. Slide flywheel onto crankshaft and BBC leaf spring onto flywheel stub shaft.

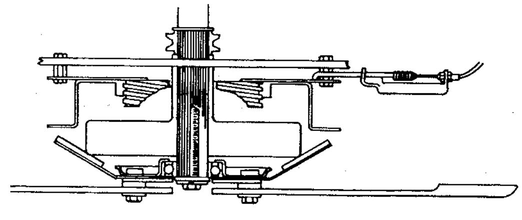
IMPORTANT: Install 3/8-24x2-1/2" Gr. 5 cap screw and lockwasher to secure. Torque to 30 ft-lbs (40.6 Nm) using BBC wrench to hold leaf spring and flywheel. Secure mower blade with two 3/8-24x1-1/4" Gr. 5 cap screws with lockwashers, torque to 25-30 ft-lbs (33.8-40.6 Nm).

Check idler for free rotation of pulley and movement of pivot.

Replace drive belt in reverse order being sure that belt seats in pulley grooves with idler positioned on back (flat) side of belt.

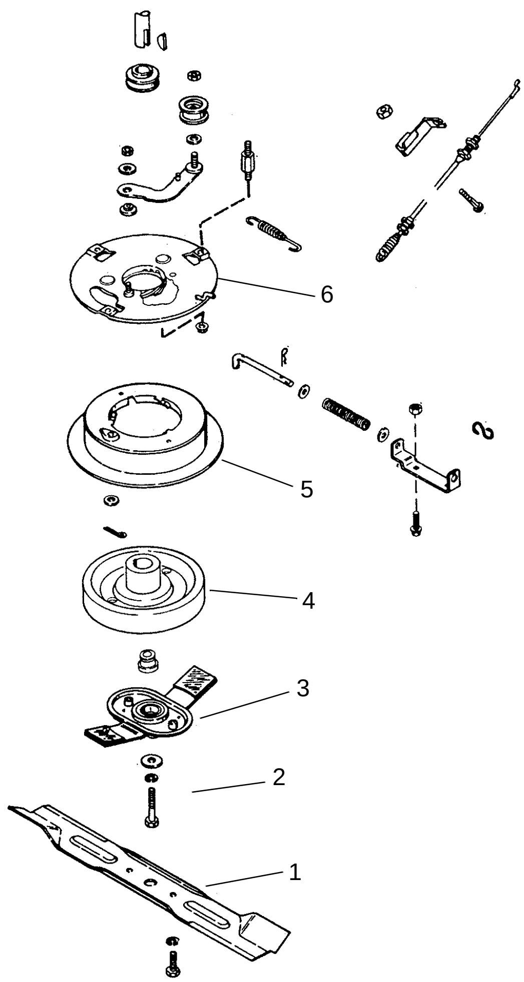


Brake Engaged



Blade Engaged

Figure 19



1. Blade
2. Cap Screw, Lock Washer & Flat Washer
3. Leaf Spring
4. Flywheel
5. Brake Actuator
6. Ramp Assembly

Figure 20

6.2 DRIVE BELT REPLACEMENT

> **CAUTION:** Use sturdy gloves or padding to protect hands when working with mower blades.

NOTE: On BBC model blade brake/clutch assembly must be removed to change belt.

Place right rear adjustment lever in first notch and left rear height adjustment lever in third notch. This provides clearance between friction wheel and drive disk.

Remove belt from idler, drive disk and engine pulley. Remove belt through opening under mower pan.

Inspect parts for wear and or damage, replace as necessary.

Assemble in reverse order.

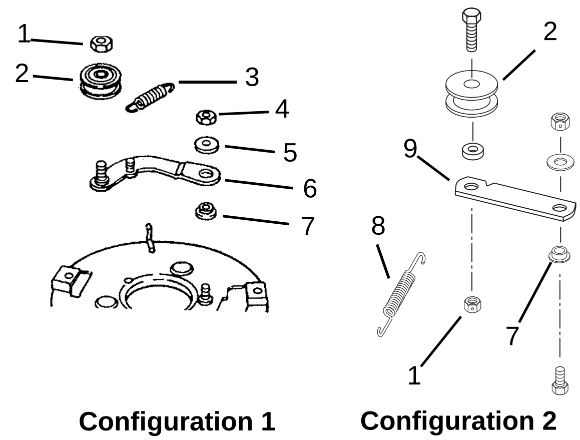
NOTE: Be sure to return wheel height adjustment levers to original position.

6.3 IDLER REMOVAL

Remove mower blade, hub, and center baffle. Refer to Mower Blade Section of this manual.

Remove idler spring. Loosen hardware securing idler arm to mower pan, and remove cap screw securing idler to idler arm.

Inspect parts for wear and or damage, replace as necessary. Assemble in reverse order.



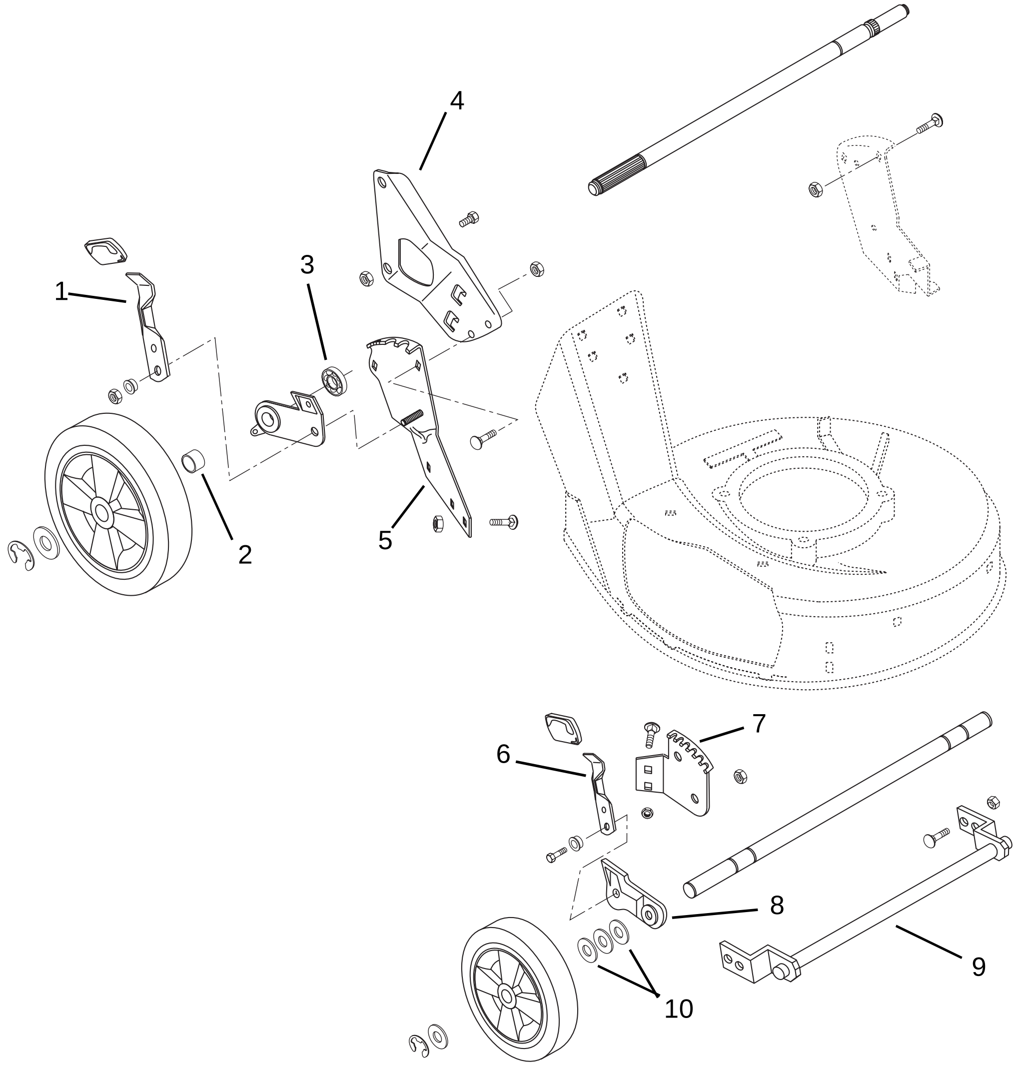
1. Two-Way Lock Nut
2. Idler
3. Extension Spring
4. Center Lock Nut
5. Washer
6. Idler Arm
7. Flange Bushing
8. Tension Spring
9. Spacer

Figure 21

6.4 WHEELS AND ADJUSTERS

Regularly check wheels and adjusters for wear. Replace wheels when they become excessively worn. Adjusters should be cleaned and fasteners checked for tightness.

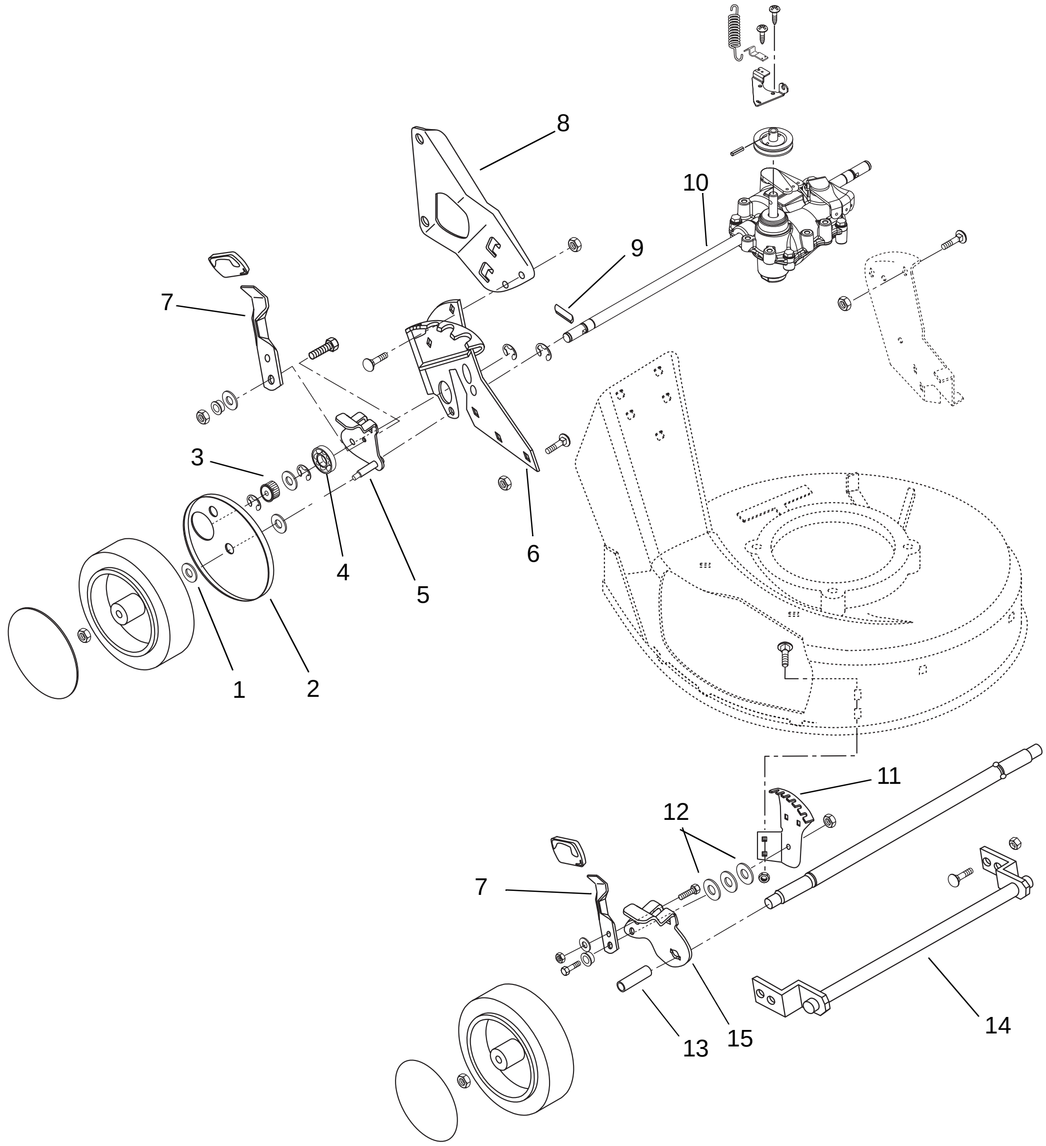
Check the front wheels for bushing wear. Replace as needed.



1. Height Adjustment Lever
2. Spacer Tube
3. Ball Bearing
4. Handlebar Mounting Bracket
5. Rear Quadrant
6. Front Height Adjustment Lever
7. Front Quadrant
8. Adjuster Bracket
9. De-Thatcher Retainer
10. Flat Washer

Figure 22 Friction Drive

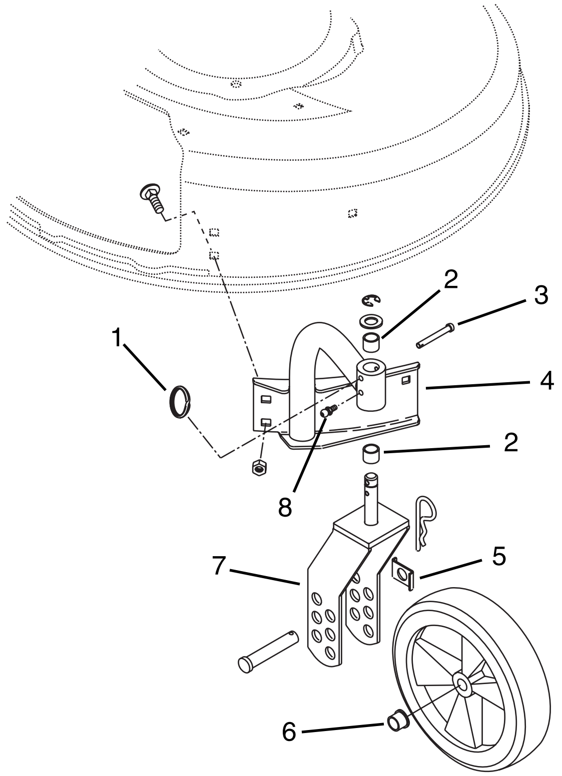
PM0065



1. Washer
2. Inner Wheel Cover
3. Ratchet Pinion
4. Ball Bearing
5. Height Adjuster
6. Rear Quadrant
7. Height Adjustment Lever
8. Handlebar Mounting Bracket
9. Key Ratchet
10. Tuff Torque Transmission
11. Front Quadrant
12. Washer
13. Spacer
14. De-Thatcher Retainer
15. Adjuster Bracket

Figure 23 Gear Drive

PM0360



1. Kickout Ring
2. Sleeve Bushing
3. Clevis Pin
4. Mount Arm
5. Axle Tab
6. Flange Bushing
7. Wheel Yoke
8. Lube Fitting

Figure 24

7.1 HANDLEBARS AND BAILS

To remove handlebars:

Remove cable retainers and disconnect cable from bail. Remove push nuts and washers securing bails to handlebars. Remove bails from handlebars.

Remove carriage bolts and washers or knob and washers securing braces to handlebars. Remove braces.

Remove carriage bolt, nut and washer securing handlebar to handlebar bracket. Remove handlebars and inspect parts for wear and or damage. Replace as necessary and assemble in reverse order.

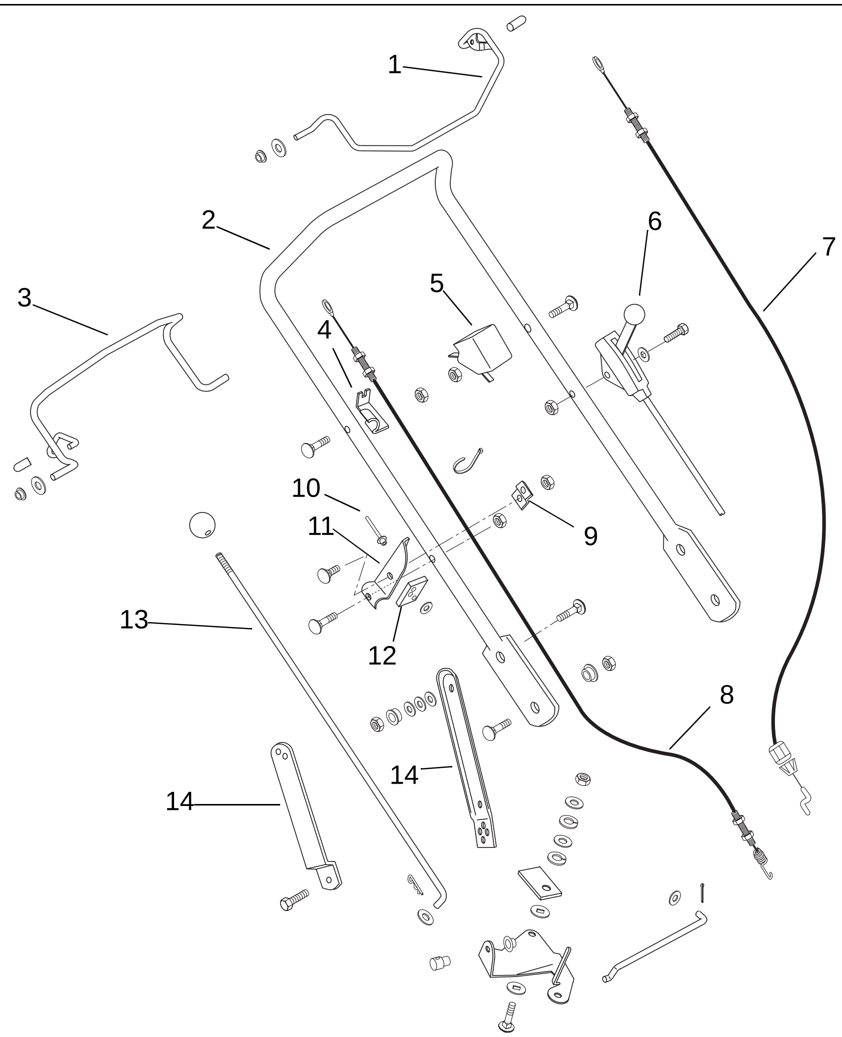
Check all parts for wear and replace as needed.

7.2 SPEED CONTROL BELL CRANK

To adjust models with spring, fully compress compression spring with lock nut and then back lock nut off one turn.

To adjust units without spring:

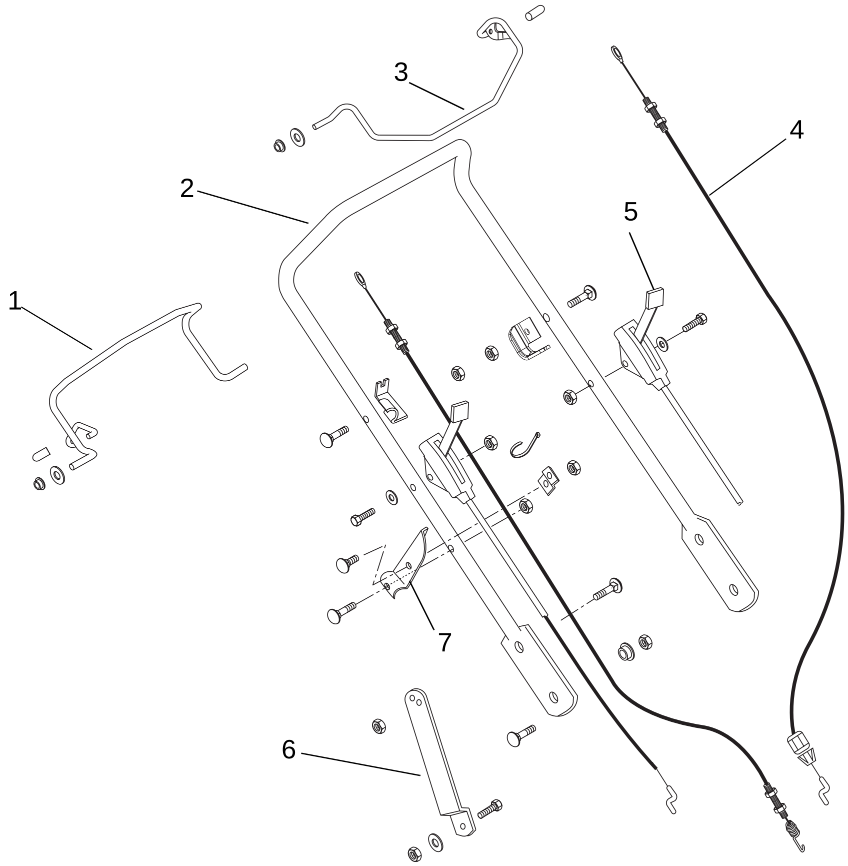
1. Remove cover and completely compress helical spring lockwashers with locknut, then back off 1/4 turn.
2. If rod is still too loose, tighten nut in small increments until the rod holds.



1. Engine Bail
2. Handlebar
3. Traction Bail
4. Cable Anchor
5. Cable Anchor Switch
6. Throttle Cable
7. Engine Control Cable
8. Traction Cable
9. Speed Control Brace
10. Rivet
11. Speed Control Bracket
12. Support Pad
13. Speed Control Rod
14. Handlebar Adjuster Link

Figure 25 Friction Wheel Handlebars and Controls

PM0024



1. Traction Bail
2. Handlebar
3. Engine Bail Weldment
4. Engine Control Cable
5. Throttle Cable
6. Handlebar Adjuster
7. Speed Control Bracket

Figure 26 Gear Drive Handlebars and Controls

PM0320

8.1 BATTERY (ELECTRIC START MODELS)

IMPORTANT: Use battery charger supplied only. DO NOT attempt to "jump start" mower.

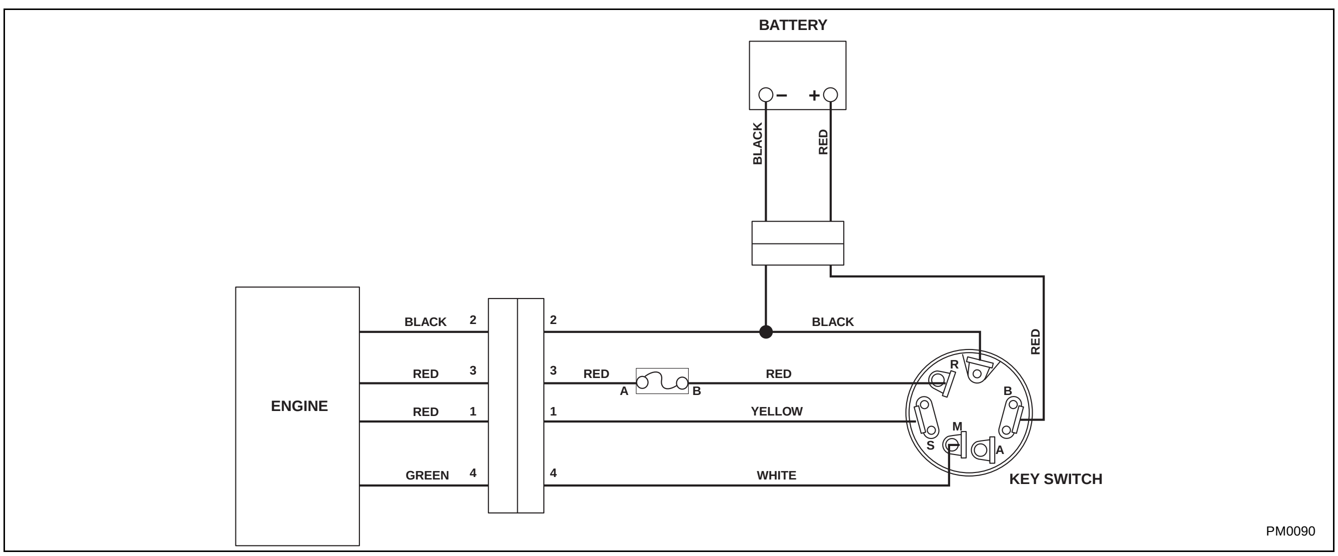
To charge with battery charger, connect charger plug to mating plug on battery (not engine) and plug charger into 110 volt Alternating Current (A.C.) outlet. Charge for 24 to 48 hours (battery may be charged for up to 72 hours with no harmful effects).

An engine run time of at least 8 hours is required to charge a fully discharged battery.

To Remove Battery from Unit

1. Remove wing nuts from battery U-bolt.
2. Disconnect battery from wiring.

8.2 WIRING DIAGRAM



8.3 CONTINUITY DIAGRAM

The diagram below shows the various states of connection for electrical components.
The solid lines on switches show continuity.
NOTE: All switches are viewed from the rear.

Key Switch
(01155800)



SECTION 9 - FRICTION DRIVE SYSTEM & AXLE

9.1 INTRODUCTION

WARNING: Remove wire from spark plug before attempting any repair or adjustment procedures.

WARNING: Gasoline is highly flammable and its vapors are explosive. Handle with care.

CAUTION: DO NOT touch engine or parts which are hot from operation. Allow such parts to cool before servicing unit.

NOTE: Rear wheels must be removed to perform repairs in this section. Block up rear of mower to raise rear wheels off work surface. Remove snap ring securing wheel to axle and remove washer and wheel.

9.2 GEAR REMOVAL

Remove snap ring securing gear cover over idler shaft, remove taptites securing cover to drive mount, and remove gear cover.

Slide differential assembly off axle and remove idler gear from idler shaft.

Drive out roll pin securing pinion gear on hex shaft and remove pinion gear.

Inspect parts for wear and or damage, replace as necessary. Assemble in reverse order and grease spline area.

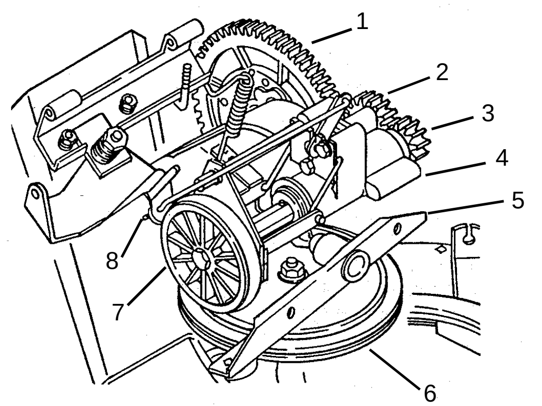
9.3 AXLE REMOVAL

Remove snap ring next to axle spline on left side of axle and remove axle bearing.

Remove cotter pin securing left side of rear protective guard to bracket and move guard out of the way.

With snap ring pliers, spread snap ring apart on right side of axle. Pull right wheel and axle from mower until left end of axle clears drive mount.

Inspect parts for wear and or damage, replace as necessary and assemble in reverse order being sure to grease spline area.



1. Differential
2. Idler Gear
3. Pinion Gear
4. Drive Carrier
5. Pivot Channel
6. Drive Disk
7. Friction Wheel
8. Shift Link

Figure 27

9.4 DRIVE MOUNT REMOVAL

Remove axle and gears. Refer to Axle Removal and Gear Removal Sections.

Remove extension spring from drive actuator. Loosen nuts securing drive cable to drive actuator. Remove drive cable spring from bracket on mower pan and remove drive cable from drive actuator.

Remove cotter pin and washer from shift link. Remove shift link, and drive mount.

Assemble in reverse order.

9.5 DRIVE MOUNT DISASSEMBLY

Drive out roll pin in hex shaft and remove hex shaft.

Press out bearings from drive mount with bearing driver.

Remove taptites securing retainer plate to drive mount and remove guide shaft.

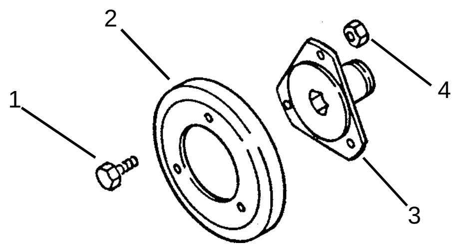
Push idler shaft out of drive mount, inspect parts for wear or damage and replace as necessary. Assemble in reverse order.

9.6 FRICTION WHEEL REPLACEMENT

If rubber tire on friction wheel becomes worn, chipped, or broken, friction wheel must be replaced.

On models with steel friction wheel hub and 3 retaining screws, remove the three cap screws and nuts that secure friction wheel to hub (hole in bearing plate provides access to hardware) and remove friction wheel.

Assemble in reverse order. Refer to Section 4.12 to adjust friction wheel drive.



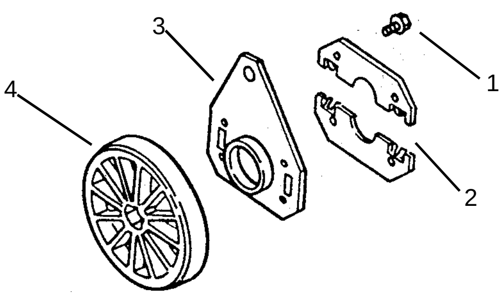
1. Cap Screw
2. Friction Wheel
3. Friction Wheel Hub
4. Lock Nut

Figure 28

On models with plastic friction wheel hub, remove drive cover nut and remove drive cover. Remove two taptites and snap ring from gear cover and remove gear cover. Remove cotter pin from shift link and move shift link out of way.

Remove three #12-24 x 1/2" taptites from retainer plate. Remove 3/16 x 7/8" roll pin from hex shaft with roll pin driver. Slide hex shaft to left. Slide friction wheel, retainer plate and thrust plate off hex shaft. Remove taptites from thrust plate, separate thrust plate, and remove friction wheel.

Install new friction wheel using reverse procedure.



1. Taptite
2. Thrust Plate
3. Guide Plate
4. Friction Wheel

Figure 29

9.7 DRIVE DISK REMOVAL

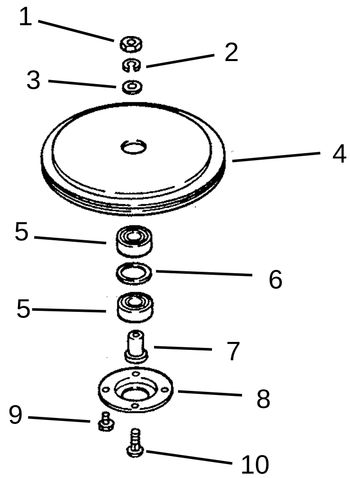
Remove drive belt.

Remove nut, lockwasher and flat washer securing drive disk to mower pan.

Remove four taptites securing bearing retainer to drive disk, remove bearing retainer and spindle.

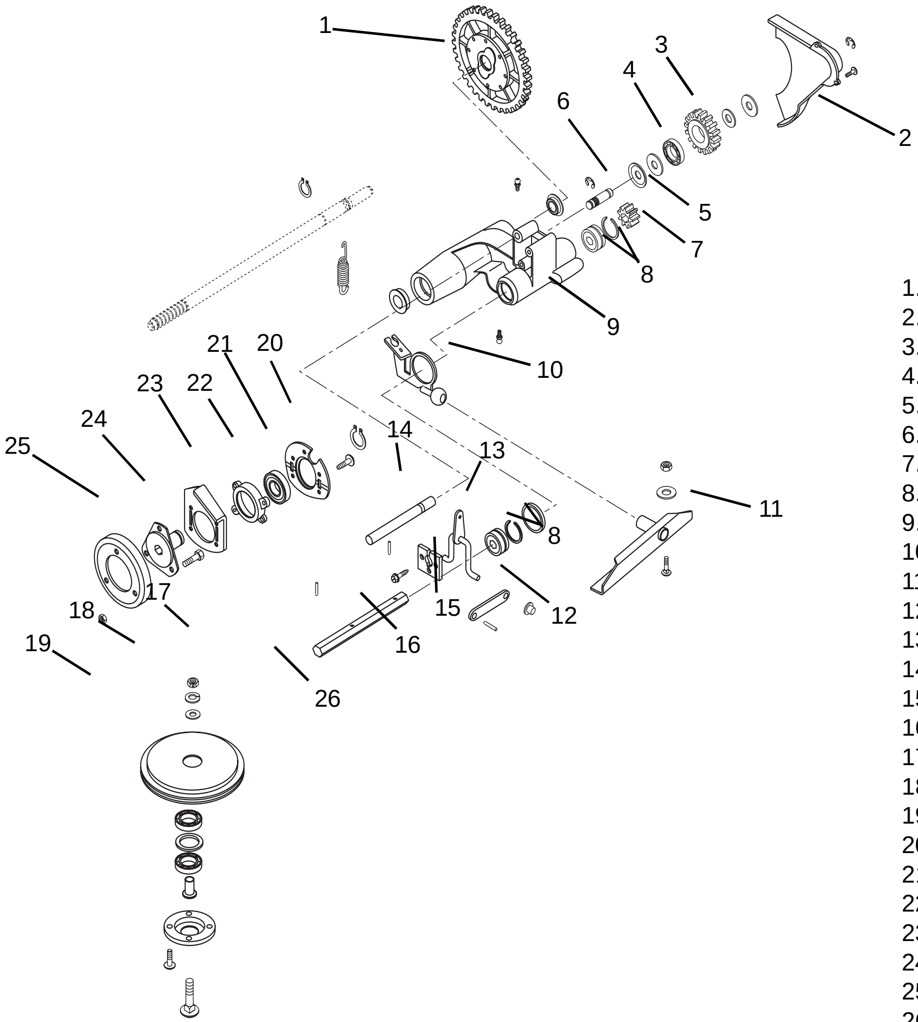
Press out bearings from drive disk using Ariens Bearing Driver P/N 000026. Replace bearings with Bearing Driver P/N 000046.

Inspect parts for wear or damage and replace as necessary. Assemble in reverse order.



1. Nut
2. Lock Washer
3. Washer
4. Drive Disk
5. Ball Bearing
6. Washer
7. Spindle
8. Bearing Retainer
9. Taptite
10. Carriage Bolt

Figure 30



1. Differential Assembly
2. Gear Cover
3. Idler Gear
4. Ball Bearing
5. Retainer
6. Idler Shaft
7. Pinion Gear
8. Ball Bearing
9. Drive Mount
10. Drive Actuator Weldment
11. Pivot Channel Weldment
12. Shift Link
13. Shift Arm Weldment
14. Guide Rod
15. Retainer Plate
16. Hex Shaft
17. Guide Plate
18. Friction Wheel Hub
19. Friction Ring
20. Bearing Retainer
21. Ball Bearing
22. Bearing Retainer
23. Bearing Plate
24. Friction Disc
25. Friction Wheel
26. Thrust Plate

Figure 31

PM0080

SECTION 10 - GEAR DRIVE SYSTEM & AXLE

10.1 INTRODUCTION

WARNING: Remove wire from spark plug before attempting any repair or adjustment procedures.

WARNING: Gasoline is highly flammable and its vapors are explosive. Handle with care.

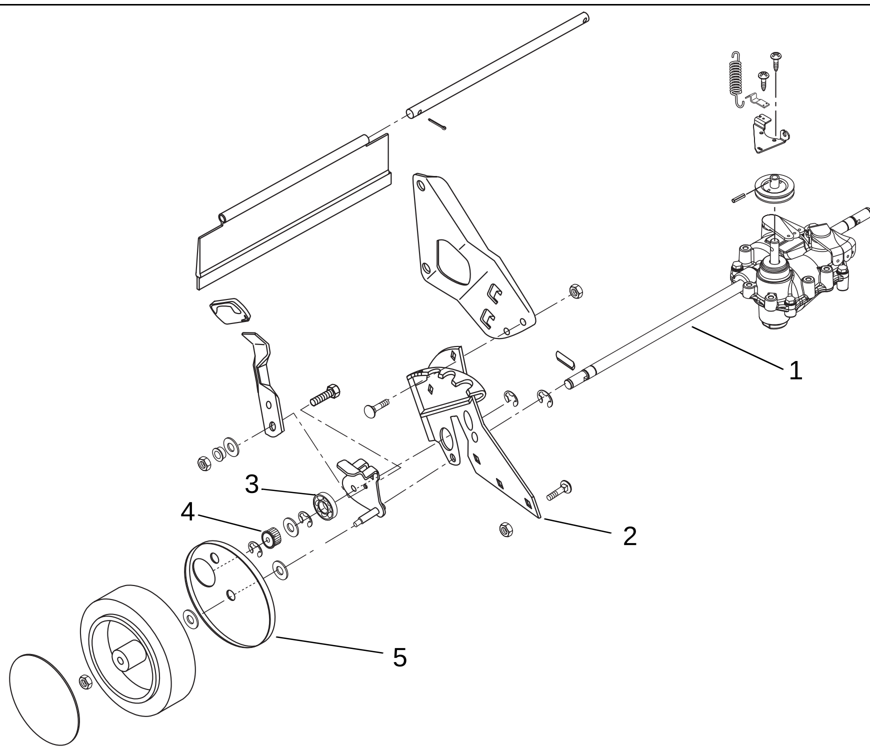
CAUTION: DO NOT touch engine or parts which are hot from operation. Allow such parts to cool before servicing unit.

NOTE: Rear wheels must be removed to perform repairs in this section. Block up rear of mower to raise rear wheels off work surface. Remove snap ring securing wheel to axle and remove washer and wheel.

10.2 TRANSMISSION REPLACEMENT

The 3-speed transmission is not repairable. It should be replaced if internal problems develop. To remove the transmission, remove the drive wheels and pinions. Slide the axles out.

1. Remove wheel cover and axle nut to remove wheel and inner cover.
2. Remove drive pinion and axle bearing by removing the two retaining E-clips.
3. Repeat steps 1 and 2 for the other rear wheel.
4. Disconnect the gearshift cable.
5. Unbolt the transmission from the left hand quadrant.
6. Remove drive belt from pulley.
7. Slide the transmission/axle assembly to the right and then down to remove.
8. Install replacement in reverse order. Use pulley and shift linkage from removed unit.



1. Transmission-Tuff Torque
2. Left Hand Rear Quadrant
3. Ball Bearing
4. Ratchet Pinion
5. Wheel Inner Cover

Figure 32

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